Crisis Aftermath:
Economic policy changes in the EU and its Member States

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Foreword

The global economy has not yet recovered from the 2008 financial and economic crisis. Moreover, the fiscal and financial uncertainties have reappeared again, and continue to rise. These times will certainly have long term effects and will open a new era in the global economy.

The University of Szeged, Faculty of Economics and Business Administration organized an international conference on 8-9 March 2012, to explore the identifiable effects causing permanent changes in monetary and fiscal policies and in other areas of the economic policy within the European Union and its Member States. It was a closing event of a two-year research conducted by the Institute of Finance and International Economic Relations in the framework of the Project named „TÁMOP-4.2.1/B-09/1/KONV-2010-0005 – Creating the Centre of Excellence at the University of Szeged" supported by the European Union.

Monetary Policy
The 2008 global economic crisis began as a financial crisis and was attempted to be addressed by monetary policy. Application of discretionary policy tools has been reinforced again. The liquidity issues of the financial institutions have led to the institutional reform of the EU financial supervisory system and to the draft of the Basel III Regulation.

Fiscal Policy
The increased public debts which arose due to the crisis may set forced tracks for fiscal policy, which will affect the government redistribution, the welfare system, and the future of the European economic and social model on the whole. The coordination of fiscal policy at the EU level is a precondition of the euro zone sustainability.

Challenges for economic policy in the real economy
The crisis sets new challenges for the economic policy related to the real economy as well. The high level of public debt and the inherent problem of slower economic growth present an enormous issue for employment policy. The increased state aids during the crisis challenge the competition policy. The global economic competition and the structural changes associated with the crisis present new tasks for innovation and industrial policies as well.

Thanks to a lot of precious high quality papers, participants discussed these topics in lively debates in three sections. It is a great pleasure and honour for us that we could review and edit the conference proceedings and we can make them available for interested readers via the internet.

I use this opportunity to kindly thank all the authors, the members of the Scientific and Reviewer Committee, the organizing team, the Proko Travel Agency for their valuable contribution to the conference. Last but not least I particularly thank our sponsor, the European Commission Representation in Hungary that recognised the importance of this conference.

Szeged, 12 July 2012

Beáta Farkas
Chairperson of
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Liquidity and asset prices: a VECM approach

Attila Ács

The recent financial and economic crisis highlighted the importance to better understand the relationship between liquidity developments and asset price movements. Central banks with focus on inflation targeting allowed asset price inflation, following burst, with its devastating consequences for the financial system and real economy. Equilibrium price should emanate from fundamentals. However liquidity conditions are part of fundamental variables and should be taken into consideration as explanatory variables in the process of asset pricing. Furthermore in many cases assets serve as collateral in refinancing which means that refinancing conditions influence values of pledged assets.

Keywords: liquidity, asset pricing, broker dealer, repo, error correction

1. Introduction

Low and stable inflation supports financial stability, it also add to the probability that excess demand show up first in credit aggregates and asset prices, sooner than in the prices of goods and services. By anchoring expectations and hence inducing greater stickiness in prices and wages can lessen the inflationary pressures emanating from increased demand. Consequently, in certain situations, a response by the monetary authorities to credit and asset markets can be motivated to safeguard both financial and monetary stability (Borio and Lowe, 2002).

2. Relevant literature, liquidity variables

At the eruption of the financial crisis the notion of funding liquidity frequently was pointed out in relation to asset prices. The funding or balance sheet liquidity is the ability of a financial institution to settle obligations with immediacy (Drehmann and Nikolaou, 2009). This inherently supposes that funding conditions should be an intrinsic part of asset and financial stability valuation process. In the midst of rapidly evolving financial theory not surprisingly there are difficulties with the identification of liquidity and as a consequence with its measurement. To find relationship between asset prices and monetary or credit aggregates seems appealing but only after the recent financial crisis arrived satisfactory answer.

The non-interest-bearing fiat money is simply the outcome of a liquidity shortage, not a logical requirement. In the future money may ultimately disappear owing to ultra-liquid, privately-issued securities that earn interest. In this view, Monetary Economics should be displaced by Liquidity Economics. Money has no intrinsic value and people are willing to hold because they find it difficult to barter. Money is accepted because it's been believed that would be accepted it in the future. That is mutually-sustaining beliefs are indispensable to its acceptance and existence (Kiyotaki and Moore, 2001). As fiat money is not interest bearing everybody who holds it faces opportunity cost. A kind of hot potato affect is a characteristic of fiat money - that is nobody desires to hold for a sustained period – which urge economic agents to exchange it for interest bearing assets. Ceteris paribus more money leads to increased demand for assets.

Continuous rapid credit growth together with huge increases in asset prices seems to increase the possibility of an occurrence of financial instability. However rapid credit growth, on its own, creates modest risk to the stability of the financial system. The same is true for quick growths in asset prices or investments. It is the combination of events, particularly the synchronized happening of fast credit growth and rapid increases in asset prices and that increases the likelihood of financial risk, rather than any one of these events alone (Borio and Lowe, 2002).

Studies ahead of the recent financial crisis predominantly used money and credit aggregates to explain asset price developments, e.g. Detken and Smets (2004), Wyplosz (2005). Baks and Kramer (1999) computed growth rate in broad and narrow money to generate global liquidity indictors for the G-7 countries. Borio et al. (1994) examined the link between credit and asset prices, trying to identify an indicator of future movements in output and inflation and to determine the demand for money. Borio and Lowe (2002) highlighted the importance of cumulative effects of credit growth. This approach is understandable as before the monetary policy shifted to inflation targeting during 80's and 90's central banks pursued monetary targeting regime.

Main feature of the development of financial systems since the 1970s has been the rapid expansion of financial markets. The importance of liquidity has been acknowledged by central banks in respect to both monetary and financial stability. This is reflected in market-oriented operating procedures and the intense use of asset prices as a guide for monetary policy. For example, yield curves are commonly used to extract information about market participants' expectations concerning inflation. This process depends crucially on the liquidity of the underlying market, namely the treasury and bond market. In case of financial stability central banks use asset prices in the monitoring of vulnerabilities in the financial system, as they include information about market participants' assessment and risk pricing (Borio, 2000).

Classical monetary and credit aggregates do not fully cover market participants' aggregated ability to buy assets. The studies mentioned above measured liquidity in monetary aggregates but liquidity is something more. Monetary aggregates measure the liabilities of deposit-taking banks, and so may have been useful before the advent of the so called market-based financial system. Market-based institutions (broker-dealers, investment banks) overtook the dominant role in the supply of credit from commercial banks. These market-based financial institutions were deeply involved in securitisation and actively used capital and financial markets to satisfy their funding needs. This way market-based liabilities such as repos and commercial paper are better indicators of credit conditions that influence the economy. As a result there is a case for restore a role for balance sheet quantities in the conduct of monetary policy. From the point of view of financial stability measures of collateralized borrowing, such as the weekly series of primary dealer repos can prove very useful. This changing nature of finance is reflected by the aggregate balance sheet of market-based financial intermediaries which in 2007 reached 17.000 trillion of dollars compared to commercial banks 13.000 trillion (Adrian and Shin, 2008).

Repurchase agreement (repo) is a form of money (private/inside money), like demand deposits but for institutional investors and nonfinancial firms. These companies require ready access to cash should the need arise, a way to safely storage and some interest. In a repo deal a "depositor" (e.g. money market funds) deposits money at a financial institution (e.g. investment bank, broker-dealer) and receives collateral, valued at market prices. The contract is short term (typically overnight), which means the depositor can withdraw the money at any time by not renewing or rolling the repo. The deposits supported by assets (e.g. bonds, ABS) as collateral obtained from the institution where the fund is

deposited. In banking crises available money from repo markets disappear, liquidity dries up because of a loss of confidence (Gorton and Metrick, 2010).

To protect against losses in case of default of borrower lenders apply a so called haircut on pledged assets, which is the difference between the current market price of the security and the price at which it is sold. The system of repurchase agreement is built on trust of the value of the underlying asset. If case of questioning the value of collateralised assets, the trust evaporates from the markets resulting in higher haircuts. A haircut addresses the risk that if the holder of the bond in repo, the depositor, has to sell a bond in the market to get the cash bank, he may face a better informed trader resulting in a loss (relative to the true value of the security). This risk is endogenous to the trading practice, which is not the danger of loss due to default. As a result, the price cannot adjust to address this risk. One way to protect against this endogenous adverse selection risk is to require overcollateralization (Gorton and Metrick, 2010).

Principal determinant of available funding to leveraged institutions is the variation of the haircut size, since the haircut determines the maximum possible leverage (ratio of assets to equity) for investors (Adrian and Shin, 2009; Brunnermeier and Pedersen, 2008).

Higher haircuts may come from increased market volatility which means uncertainty about the collateral value. Decreasing assets values mean lower amount of money available from repo which circumstance adds additional pressure to asset prices. To put it differently there is procyclicality between liquidity and asset prices.

It is true that risk emanating from repo is limited by collateral but repo is not free of counterparty risk. Collateral pricing in case of default can be uncertain, and illiquidity and volatility in the secondary markets for this collateral can induce large transactions costs. In this case, measures of bank-counterparty risk may be relevant to lenders, set as the spread between the 3-month LIBOR and the 3-month OIS (Gorton and Metrick, 2009).

Haircuts, volatility, counterparty risk, and short term refinancing creates funding liquidity risk. Information about aggregate funding liquidity risk can be learned by observing the bidding behaviour of banks during open market operations. The method observes the sum of the premium banks are willing to pay above the expected marginal rate (i.e. the expected interest rate which will clear the auction) times the bidding volume, and normalised by the expected amount of money supplied by the central bank. The obtained tool named liquidity risk insurance premia (LRP) which shows strong negative interrelationship with market liquidity. In this sense higher funding liquidity risk implies lower market liquidity (Drehmann and Nikolaou, 2010).

About the repo market it is important to mention that simply there is not enough AAA, highest rated debt in the world to satisfy demand (Fitch, 2011), so the banking system is under pressure to create supply. The prime reason is the rapid growth of money under management by institutional investors, pension funds, mutual funds. These entities need large amount of cash at hand, which earns interest, a safe investment, while offering the flexibility to use cash, in short, a demand deposit-like product. As a consequence the range of assets eligible for repo widened and haircuts got extremely low (Gorton and Metrick, 2010). As a response to the demand, the financial industry created new structures and produced new instruments that seemed to offer higher risk-adjusted yields. In this background, market discipline failed as optimism triumphed, due diligence was outsourced to third party credit rating agencies Low interest rates amid high price growth and low volatility urged investors around the world to look for yield further down the credit quality curve resulting in overoptimistic risk evaluation (IMF, 2009).

Figure 1/a: broker-dealers' balance sheet, M2

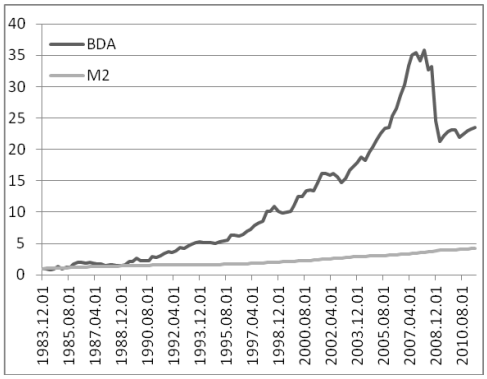
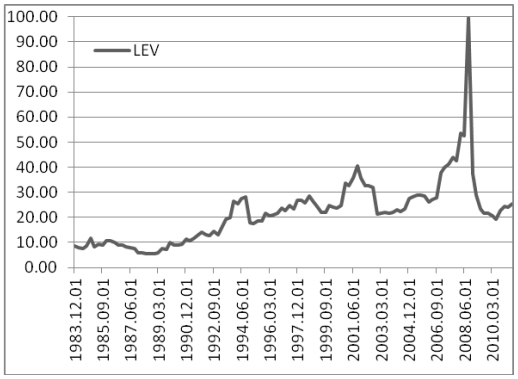


Figure 1/b: broker-dealer leverage



Source: Federal Reserve

3. Considerations

These paragraphs are built around relevant concept like refinancing conditions (collateral, repo, and haircut), maturity transformation and yield curve. Market participants' aggregated asset purchasing capacity and liquidity conditions are determined by the interaction between these factors. It is the combination of events which really matters rather than any factor independently and broker-dealers' aggregated balance sheet gives a good synthesis of liquidity conditions in general. But obviously factors can be investigated one by one more profoundly. This section offers reflections which can be used as starting points of a more profound research of the independent variables.

Development of broker-dealer leverage[1] is displayed in Figure 1/b which demonstrates that large decreases in broker-dealer leverage are associated with times of macroeconomic and financial sector turmoil (see the peeks at 2001Q3 and 2008Q3). In Figure 1/a the development of M2 monetary aggregate and broker-dealers' aggregated balance sheet is presented, both normalised to 1984Q1. The growing importance of broker dealers can be understood if the enormous size of their balance sheet is taken in consideration (17.000 trillion of dollars).

Refinancing by the use of repo is a universally used practice among investment companies. But repo usually is short term which exposes investors to refinancing risk frequently (daily, weekly, monthly). This also means that investors' reaction functions are similar and are not independent from each other. Similarity creates forces which move into the same direction at the same time exposing the financial system to stress events. The use of repo among US broker dealers gained popularity from the beginning on 90s and was the main driver of balance sheet for 3 years from 2004Q2 till 2007Q3.

If certain type of assets serve as collateral in refinancing it means that refinancing conditions influence values of pledged asset. Haircuts are different for different asset classes so ceteris paribus assets with lower haircut and higher revenue are more valuable as they afford higher leverage and potential profit. The availability of borrowable funds makes possible for investors to buy assets in addition to their capital exploiting the potential in leverage.

The notion of "collateral bubble" illuminates clearly one of the major sources of the recent financial crisis. Overly optimistic (imprudent) valuations cause not only asset bubble but as a consequence inflate collateral values too, emphasising the twofold role of assets as investments and collaterals. In

[1] Accounting leverage is calculated as the difference between total assets and total liabilities divided by total assets.

case of crisis (or illumination) not only investors or speculators lose money but also creditors as collaterals with decreased value do not offer enough counter-value in case of the borrowers' default.

The collateral bubble phenomenon causes procyclicality in the economy. The importance of the collateral issue in lending practices was highlighted by Borio et al. in 2001. The aggregate value of collateral to GDP can be an important issue to measure procyclicality. If in bank lending process the risks emanating from collateral are incorrectly assessed than the possibility of large credit cycles is increased (Borio et al., 2001).

Investors buy discounted future cash-flows represented by assets like bonds, commercial papers, stocks[2]. The trigger of the recent financial crisis was the loss of confidence in asset cash-flows (namely asset backed securities). The confidence in assets and collateral values and counterparties' solvency plunged very quickly from extreme highs resulting in increasing haircuts and narrowing circle of assets eligible for repurchase agreement. The consequence can be involuntary leverage as precipitating asset values wipe out leveraged borrowers' capital faster than they can reduce leveraged positions. This is precisely what happened in 2008 when broker dealers' accounting leverage reached nearly value of 100. [3]

By means maturity transformation and carry trade leverage can become more intense. In this sense a distinction can be made on two basic strategies: carry trade and maturity transformation. Carry trade attempts to capitalise on the difference of two interest rate environment; typically borrows money in a low-interest rate currency and buys higher-yielding assets in a different currency. This strategy is characteristic of investment banks.[4]

Maturity transformation takes advantage of the yield curve. The core of maturity transformation is the positively sloped (normal) yield curve, which means that shorter term investments (deposits, treasuries) earn lower interest rate than longer term ones (loans, mortgages, bonds). Steeper yield curve means higher profits from maturity transformation and flattening yield curve ceteris paribus decreasing the earning capacity of the financial industry. [5]

Though, distinction between two types of maturity transformation has to be made: liquidity transformation and interest rate risk transformation. Both build on the different market liquidity of long and short term assets. Longer terms assets are less liquid and are traded with interest rate premium. While the former one used typically by broker-dealers and assumes liquidity risk, the latter transformation involves the classical commercial banks which assume interest rate risk.

Financial institutions taking part in maturity transformation take on interest rate risk, including changes in rates of greater magnitude (e.g., up and down 300 and 400 basis points) across different tenors to reflect changing slopes and twists of the yield curve (FDIC, 2010). This risk affects investment and commercial banks which creates similarities in reaction functions.

These days excessively low long term interest rates creates risk factors as they are so small that it isn't worthwhile to invest. This situation firstly creates impetus to accept lower quality debt as collateral in

[2] I would call this funding liquidity, namely raise cash against collateral.
[3] Economic leverage would be more informative about the real risk size however it depends on model assumptions regarding correlations (and volatilities) which in stressful times usually breaks down. Furthermore it would require information about the size and direction (short or long) of positions.
[4] Carry trade usually entails high risk due to open exchange rate positions or involves exchange rate hedge by us of expensive derivatives.
[5] Not by chance an inverted yield curve always portended the stagnation of the US economy as between these conditions the profitability of banking activity got under serious pressure.

repo transactions. Secondary it creates liquidity overhang urging the acquisition of riskier, less liquid, worse quality assets and present impetus for carry trade. This situation seems alarming in the midst of quantity easing an fragile economic and financial developments.

4. Empirical Research

In relation to factors influencing liquidity conditions different asset prices like stock, bonds can be investigated. Research direction is not straightforward. To begin with, money originating from a repo transaction can be used to buy different type of assets like bonds, stock, treasuries or asset-backed securities as well. The source of liquidity does not tell anything about the destination of the fund received. Secondly, money obtained in one county can be invested in a different country exploiting the potential in carry trade (liquidity spill-over effect). Of course there may be other patterns.

4.1. The dataset

The time span of investigation based on the change in the course of US monetary policy regime. In the Volker era happened the passing from monetary targeting regime to inflation targeting) which period was highlighted by great volatilities. Thus the time series start in 1984 Q1 and end in 2011 Q2 and are based on quarterly observations.

This research investigates the effect of the newly discovered measure of liquidity, namely broker-dealers' aggregated balance sheet (BDA), on assets. The explaining variables of liquidity apart from broker-dealers' or investment banks' aggregated balance sheet is broader M2 monetary aggregate[6] and gross national product (GDP). The variables under investigation are: S&P500 index (SX) representing price of the US stocks, treasury bond rate (10 year treasury bonds) and 3 months treasury rate standing for bond (B10) and treasury prices (T3) respectively – though the interpretation of these rates can be manifold. The data source for M2, BDA, T3 and B10 is the Federal Reserve Bank of the United States, for SX the Yahoo Finance and for GDP the Bureau of Economic Analysis. M2, BDA, GDP and SX time series were transformed logarithmically.

4.2. Methodology

A Vector Error Correction Model (VECM) been identified[7] for the economy of the United States as variables in case of US economy are easily available. VEC model has been chosen as it allows identification of long and short term relationships between variables. The core of VECM is cointegration which tested by the Johansen maximum likelihood procedure. In estimating the cointegration first has to be checked whether each of the series is integrated of the same order. Integration of a time series can be confirmed by the standard Augmented Dickey-Fuller test and Phillips-Perrons unit root tests. The number of cointegration ranks (r) is tested with the maximum eigenvalue and trace test. The maximum eigenvalue statistics test the null hypothesis that there are r cointegrating vectors against the alternative of r+1 cointegrating vectors. The trace statistics tests the null hypothesis of no cointegrating vector against the alternative of at least one cointegrating vector. The asymptotic critical values are given in Johansen (1991) and MacKinnonet al. (1999).

[6] The Fed stopped reporting values for M3 at the end of 2005.
[7] Jmulti and Eviews programs were used.

4.3. Descriptive Statistics

A summary of descriptive statistics of the variable can be found in Table 1. Sample mean, standard deviation, skewness and kurtosis, and the Jacque-Bera statistic and p-value have been reported. The relatively high standard deviation of B10 and T3 with respect to the mean is an indication of high price volatility of the traded items. According to the Jarque-Bera test the null hypothesis that the variables are normally distributed is acceptable only in case of T3.

All of the six time-series are integrated of order one as the Augmented Dickey-Fuller test display evidence of nonstationarity at levels but first differences are stationary at 5% significance level. Consistent with Figure 2, we conclude that all the variables are I (1).

4.4. VAR analysis, residual test

The selection of the optimal lag length was based on an auxiliary Vector Autoregression (VAR) model. The Likelihood Ratio (LR) and Final Prediction Error (FPE) statistics propose a lag length of order 6, Akaike Information Criterion (AIC) statistics propose a lag length of order 8, while Schwarz Criterion (SC) and Hannan–Quinn (HQ) criterion offer to use lag order one and two respectively.

The Lagrange multiplier (LM) test revealed presence of residual autocorrelation with all of the proposed leg length. To ensure normality, dummies were created based on the economic calendar and the graphs of the standardized residuals, which have revealed a couple of large outliers. Three blip dummy variables were created with values 1 at 87Q4, 01Q3 and 08Q4 and zeros otherwise. The 3 dummy represent 3 extreme events: the black Friday on the stock exchange, the aftermath of September 11, 2001 (and aftermath of the Enron scandal) and the recent financial crisis. By the use of these dummies with length of 4 the hypothesis of no residual autocorrelation can be accepted with fairly high confidence level (Table 2). The SC has tendency to underestimate the lag order, while adding more lags increases the penalty for the loss of degrees of freedom. AIC, SC, HQ is based on the maximal value of the likelihood function with an additional penalizing factor related to the number of estimated parameters (Juselius, 2003, p. 78). Thus the use of 4 lags is rationalised.

The normality tests are based on skewness and kurtosis. The tests show that the null of the tests, normally distributed errors, is not accepted in the multivariate case and for all individual time series aside from the treasury rate. Normality test of residuals is rejected due to kurtosis but normality of skewness is accepted at 72% confidence level. These test results are acceptable because it has shown that kurtosis is less serious than skewness (Juselius, 2003, p. 76).

Additionally, test of heteroscedasticity, signs for ARCH effects (the hypothesis of no ARCH effect can be accepted only at 1.3% confidence level). However, cointegration tests are robust against moderate residual ARCH effects (Juselius, 2003, p. 51). Since most test statistics are accepted, the model seems to describe the data well.

4.5. Cointegration test

Consider a VAR system of order p where y represents a vector of variables with $k = n$,

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \ldots + A_k y_{t-k} + u_t \qquad (1)$$

where y_t is a vector of non-stationary I(1) variables and the A_i's are $(n \times n)$ coefficient matrices and $u_t = (u_{1t}, u_{2t}, \ldots, u_{nt})$ is an unobservable i.i.d. zero mean error term or innovations. It can be reparameterized by adding and subtracting $A_k y_{t-k+1}$ from the right hand side:

$$\Delta y_t = -\Pi y_{t-1} + \sum_{i=1}^{n-1} \Phi_i \Delta y_{t-1} + u_t \quad (2)$$

where,

$$\Pi = (I - \sum_{i=1}^{n} A_i) \text{ and } \Phi_i = -\left(\sum_{j=i+1}^{n} A_j\right) = -A * (L) \quad (3)$$

Using exogenous dummy or exogenous variables D, Δy_t can be expressed with the following form:

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + \Phi D_t + u_t \quad (4)$$

If the characteristic polynomial in Δy_t

$\Pi(\lambda) = I_p - \lambda\Pi_1 - \lambda^2\Pi_2 = (1-\lambda)I_p - \Pi\lambda - \Gamma_1\lambda(1-\lambda)$ (or the companion matrix) has unit root, then $|\Pi(\lambda)| = 0$ fpr $\lambda = 1$ and $\Pi(1) = -\Pi = -\alpha\beta'$. And the ECM model becomes:

$$\Delta y_t = \alpha\beta' y_{t-1} + \Gamma_1 \Delta y_{t-1} + \Phi D_t + u_t \quad (5)$$

Granger's representation theorem asserts that if the coefficient matrix Π has reduced rank $r < k$, then there exist a k x r matrices α and β each with rank r such that $\Pi = \alpha\beta'$ and $\beta' yt$ is $I(0)$. r is the number of cointegrating relations (the cointegrating rank) and each column of β is the cointegrating vector. As explained below, the elements of α are known as the adjustment parameters in the VEC model. Johansen's method is to estimate the Π matrix from an unrestricted VAR and to test whether we can reject the restrictions implied by the reduced rank of Π.

By the use of VECM model several effects can be examined. The β_{ij} coefficients show the long run equilibrium relationships between levels of variables. The α_{ij} coefficients show the amount of changes in the variables that bring the system back to equilibrium. Γ_{ij} coefficients show the short run changes occurring due to previous changes in the variables and Φ_{ij} coefficients show the effect on the dynamics of external events.

4.6. Empirical results

Johansen Cointegration test indicates mixed results about the number of cointegration. The number of cointegration ranks (r) is tested with the maximum eigenvalue and trace test. The maximum eigenvalue statistics test the null hypothesis that there are r cointegrating vectors against the alternative of r+1 cointegrating vectors. The trace statistics tests the null hypothesis of no cointegrating vector against the alternative of at least one cointegrating vector. The asymptotic critical values are given in Johansen (1991) and MacKinnon et al. (1999).

The level data sets have clear linear trends but about the intercepts of cointegrating equation(s) (CE) nothing can be told. Accordingly the Johansen test performed with the optimal lag length of 4 and with and without the intercepts of cointegrating equation(s). In both cases one or two CEs at the 0.05 level is signalled by trace test and maximum eigenvalue test, however in case of trend assumption in the CE the presence of 2 CEs is accepted by the maximum eigenvalue and only borderline declined by Trace Test. Thus the use VECM is motivated.

The graphs of the cointegrating relations of the unrestricted model can be seen on Figure 3. The two graphs show persistent behaviour and strongly suggest mean-reversion behaviour and look fairly stationary (Figure 3). As a result, this indicator points to a rank of 2. Figure 4 depicts the recursively calculated log-likelihood which provides further information on parameter constancy and confirms a

constant parameter regime. As a result, the assumption of constant parameters, which is important for valid identification of the long-run structure, is fulfilled.

The t statistics of the parameters (Table 4) are significant (value close to1.9) at least in one of the two cointegarting equation which gives evidence of considerable evidence of long term relationship between money variables and asset prices.

5. Conclusion

The objective of this paper to prove evidence of remarkable relationship between asset prices and monetary developments, with special focus on broker dealer balance sheet, is reached by the identification of the cointegrating equations. Coefficient restrictions and detailed interpretation of the results is not intended by this paper.

Cointegration between non-stationary data series represents the statistical expression of the economic notion of a long-run economic relation. Co-integration analysis makes possible to check for various long-run relations in the data that can help to improve the understanding of the relationship between money and asset prices (Wiedmann, 2011, p. 55, 56). Parameters with significant t statistics of the (Table 4) proves the connection and especially the relevant information content of broker dealers' balance sheet

In a future research coefficient restrictions, identification of the long-run structures, short-run dynamics and the long-run impact of the common trends can be the next step forward. Relevant input data connected to this tread of study can be other monetary aggregates (M1, M3), volatility indices (VIX), repurchase agreement statistics (collateral value, haircut), measure of counterparty risk (LIBOR-OIS spread, Gorton and Metrick, 2009), or measure of funding liquidity risk (LRP, Drehmann and Nikolaou, 2010).

Additional variables under investigation can be assets like real estate, stock or derivatives. Further explanatory variables can be inflation, productivity or unemployment data, interbank money market conditions, market liquidity indexes (bid-offer spread, market depth, resilience, immediacy) financial innovation, accounting rules, regulatory capital rules.

Acknowledgement

Acknowledgement to Balázs Kotosz for the useful comments and time devoted to VAR analysis.

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Appendix

Figure 2: The graph of the variables

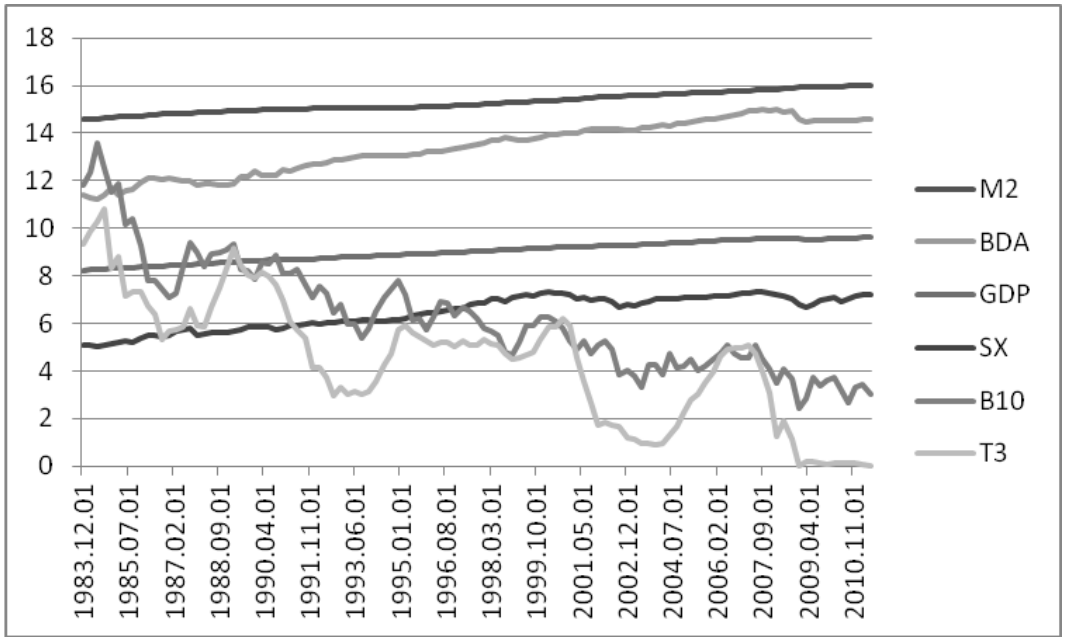


Figure 3: the cointegating relations

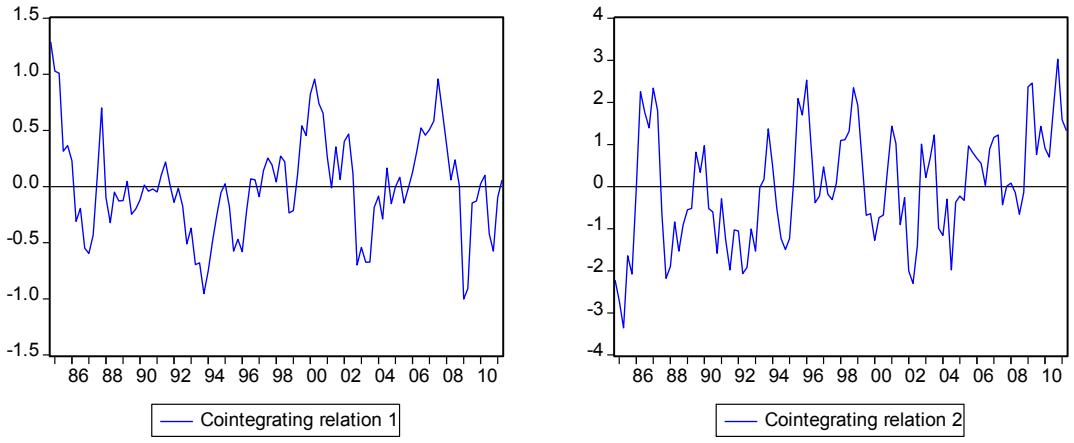


Table 1: Summary Statistics of variables

	B10	T3	LM2	LSX	LBDA	LGDP
Mean	6.284955	4.475405	15.29066	6.461711	13.38164	9.009552
Median	5.96	4.92	15.19418	6.703532	13.52624	9.037165
Maximum	13.56	10.8	16.02344	7.330897	14.99239	9.616658
Minimum	2.42	0.03	14.56961	5.031614	11.22244	8.212867
Std. Dev.	2.347868	2.618038	0.407104	0.693861	1.091384	0.41734
Skewness	0.805798	0.027878	0.206121	-0.471398	-0.288999	-0.185444
Kurtosis	3.381779	2.425087	1.874666	1.850847	1.801361	1.798972
Jarque-Bera	12.68637	1.543054	6.642975	10.21855	8.19002	7.307623
Probability	0.001759	0.462307	0.036099	0.00604	0.016656	0.025892
Sum	697.63	496.77	1697.263	717.25	1485.362	1000.06
Sum Sq. Dev.	606.3734	753.9538	18.23074	52.95878	131.0231	19.15902
Observations	111	111	111	111	111	111

Table 3. VAR Residual Serial Correlation LM Tests

VAR Residual Serial Correlation LM Tests
H0: no serial correlation at lag order h
Date: 02/01/12 Time: 14:18
Sample: 1984Q1 2011Q2
Included observations: 107

Lags	LM-Stat	Prob
1	44.21763	0.1634
2	45.24496	0.1389
3	40.72389	0.2703
4	42.50861	0.2111
5	44.3219	0.1608
6	32.48261	0.6367
7	28.19775	0.8201
8	27.14324	0.8563
9	19.73547	0.9873

Probs from chi-square with 36 df.

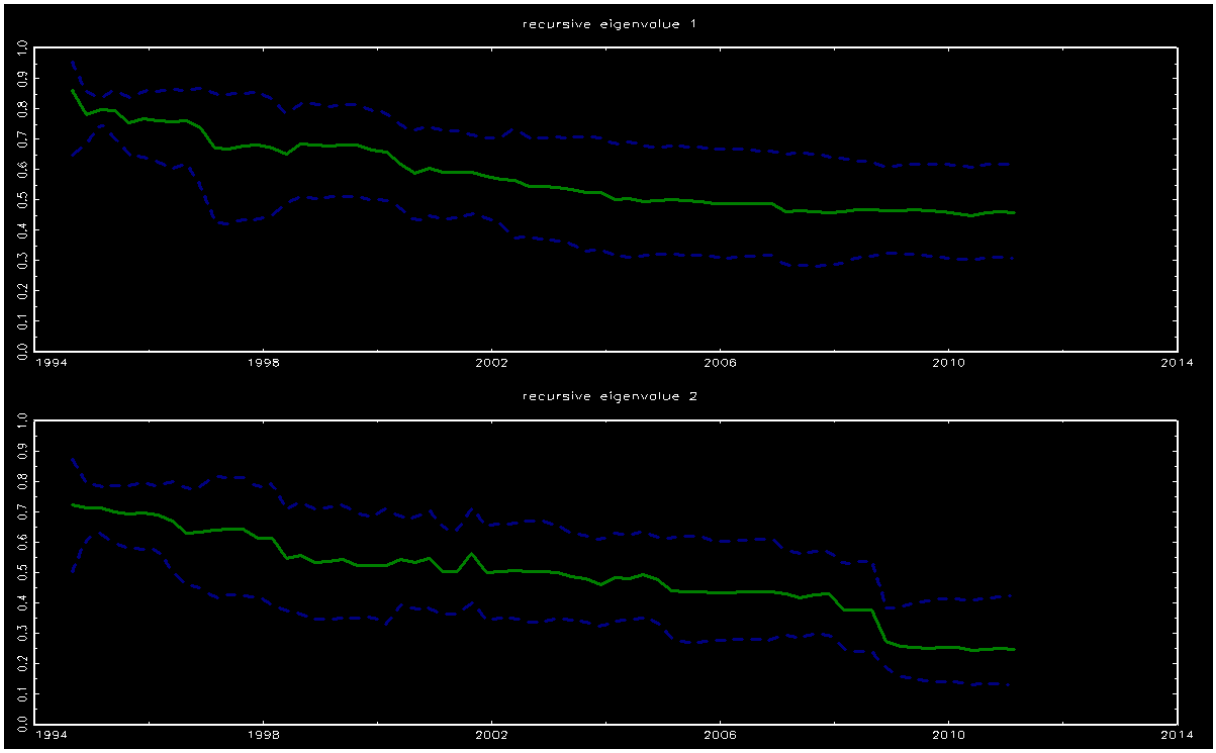
Table 4. Vector Error Correction Estimates

Vector Error Correction Estimates
Date: 02/01/12 Time: 12:55
Sample (adjusted): 1984Q4 2011Q2
Included observations: 107 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	CointEq2
LBDA(-1)	1	0
T3(-1)	0	1
B10(-1)	0.54124	-2.08814
	-0.07577	-0.17273
	[7.14273]	[-12.0893]
LM2(-1)	2.277849	-5.65699
	-1.29969	-2.9626
	[1.75261]	[-1.90946]
LSX(-1)	1.16397	-1.2826
	-0.42176	-0.9614
	[2.75977]	[-1.33410]
LGDP(-1)	-6.51801	-24.4881
	-2.72467	-6.21081
	[-2.39222]	[-3.94282]
@TREND(83Q4)	0.033754	0.358443
	-0.03466	-0.079
	[0.97390]	[4.53701]
C	-2.26557	303.9369

Error Correction:	D(LBDA)	D(T3)	D(B10)	D(LM2)	D(LSX)	D(LGDP)
CointEq1	0.031322	-0.75322	-0.59437	0.005895	-0.06171	-0.00392
	-0.02803	-0.177	-0.15596	-0.00165	-0.02476	-0.00159
	[1.11761]	[-4.25556]	[-3.81104]	[3.57253]	[-2.49173]	[-2.47459]
CointEq2	-0.01856	-0.11203	0.161822	0.001875	0.001162	-0.00106
	-0.00983	-0.06208	-0.0547	-0.00058	-0.00869	-0.00056
	[-1.88860]	[-1.80467]	[2.95843]	[3.24078]	[0.13380]	[-1.91198]

Figure 4. Recursivelly clculated eigenvalues



Stock Market Cycles and Future Trend Estimation

Carmen-Maria Angyal (Apolzan) Cecilia–Nicoleta Aniş

Contemporary period was an unprecedented growth of stock markets in both developed economies and in emerging ones. The process of financial development has led to substantial changes in the behavior of the stock markets. Recent articles have been oriented to determine the relationship between financial liberalization and stock market cycles (Edwards et al. 2003; Kaminsky and Schmukler 2003). These articles have analyzed the stock exchanges in different countries focusing on the market movements in growth phases (bull) and downward (bear).

This study uses the ARIMA methodology, that consists in estimating Minimum Mean Square Error (MMSE - minimum mean square error or "signal extraction") of hidden and unobserved components existing in a time series as it is developed in the work of Cleveland and Tiao (1976), Burman (1980), Hillmer and Tiao (1982), Bell and Hillmer (1984) and Maravall and Pierce (1987).

The study uses data representing quarterly closing prices for the period 01.03.1998 – 01.06.2011 (52 observations) of a number of 5 european indices: AEX (Netherlands), ATX (Austria), CAC40 (France), DAX (Germany), FTSE (UK) and a US stock index – Dow Jones Industrial Average. Chosen indices characterize the evolution of mature stock markets. The data used are taken from Thompson Reuters database.

The study allows identification, for the mature stock markets, the three distinct cycles in the period 1998–2011, cycle I – 1998–2002, cycle II – 2003–2008, cycle III – 2009–present. The moments of instability triggered by the actual crisis and the dot.com crisis significantly influenced all stock markets, the effects of the latter influence and their future trend. Thus, we identify a medium-term downward trend for European indices CAC40 and AEX and short-term index ATX. The estimation for European indices DAX, FTSE and Dow Jones Industrial Average US shows a medium-term growth trend.

Keywords: stock market, cycle stock, stock index, ARIMA model

1. Introduction

The contemporary period represented an unprecedented growth of stock markets in both developed and emerging economies. This process of financial development has led to substantial changes in the behavior of stock markets. A series of recent works has been oriented towards the determination of the relationship between financial liberalization and stock market cycles. (Edwards et al., 2003; Kaminsky and Schmukler, 2003). These studies have examined the stock exchanges of various countries, focusing the attention on market movements during bull and bear phases.

2. Literature review

The first works relating to stock market cycles date since 1923, when Joseph Kitchin studied the existence of cyclic movements in stock markets dynamics and he identified the existence of a 40-month cycle in a vast range of financial products, both in Great Britain and the United States, between 1890 and 1922. The 4-year cycle was found later with a strong presence in the stock markets of the 2

countries between 1868 and 1945. Although it is called "the 4-year cycle", the length of the cycle varies, in fact, between 40 and 53 months. In 1960, Clement Juglar found that the cycle of about 9 years existed in many areas of the economic activity. Subsequent investigations have found a strong presence of this cycle during 1840-1940 for the stock markets in the United States (Muntianu, 2005).

More recent studies conducted by Admiral Markets (2011) on the stock markets in the United States identify the existence of 34-year stock market cycles marked by significant events such as: 1914-1915 World War – the difficult conditions led to the closure of scholarships, reopened afterwards at a minimum level and the 1948-1949 Price/Earnings Report (Capitalization/Net Profit) reached the minimum of the century; the Dow Jones index in relation to the dollar's purchasing power reaches a minimum level, followed by the 1949-1982/1983 cycle, when a period of prolonged recession ends, where gold-quoted stock indexes (real money, those of paper being only means of payment) reach the minimum of the century, and the inflation and interest rates reach a record level. The third cycle begins in 1982 and ends in 2016. Each of the three cycles can be divided into two intermediate periods of 17 years, so: the first 34-year cycle covering the 1915-1948 period may divide into two separate periods of 17 years by the most severe financial crisis in history, known as the Great Depression of the 1930's, ending with the collapse of the banking system; in the second cycle there are also identified two periods of 17 years, divided by the 1965-1966 years, when a period of economic expansion ends, where the Dow Jones index reaches for the first time 1000 points. The overall economy is recovering upon the war, reaching the maximum, and the third cycle, marked by a first period of 17 years, which ends in 1999-2000, representing the end of the most favorable period from an economic point of view, recording a maximum of stock indexes, and more important, the biggest real value of history. (Admiral Markets, 2011).

In this section, we keep track of the study of the contemporary stock cycles' dynamics, by identifying periods ranging between two moments of stock minimum. The ARIMA methodology allows the identification of the trend component decomposed from the time series denoting quotations of the stock indexes selected.

3. Methodology

This study is using the ARIMA methodology, which consists of Minimum Mean Square Error estimation (or "signal extraction") of hidden or unnoticed components existent in a time series, as it is developed in the works of the researchers Cleveland and Tiao (1976), Burman (1980), Hillmer and Tiao (1982), Bell and Hillmer (1984) and Maravall and Pierce (1987). Normally, the components (or signals) of a time series are: the seasonal, the trend-cycle and the irregular components, the last two series comprising the seasonally adjusted (SA) series. The three components are considered mutually orthogonal and follow a linear stochastic process, usually non-stationary for the case of the trend-cycle and seasonal component. The estimators of the components are computed through the so-called Wiener-Kolmogorov (WK) filter, as applied to non-stationary series (Bell, 1984).

The ARIMA methodology presents a series of advantages, rendered on one hand by the quality of the introduced data, which has to be initially processed, offering increased protection against false results, and on the other hand, the methodology used facilitates the analysis of time series inferences (for example Pierce (1979, 1980), Bell and Hillmer (1984), Hillmer (1985), Maravall (1987) and Maravall and Planas (1999)). The use of this methodology was facilitated by the appearance of the programs TRAMO and SEATS, programs that allow its use by a series of institutions worldwide.

In essence, given the vector of observations:

$$y = (yt1, \dots, ytm) \text{ where } 0 < t1 < \dots < tm \quad (1)$$

The TRAMO methodology corresponds to the regression model:

$$yt = z_t\beta + x_t \quad (2)$$

Where β is the coefficient of the regression vector, z_t denotes a matrix of the variables regression and x_t follows the general stochastic process ARIMA

$$\Phi(B)\delta(B)x_t = \Theta(B)a_t \quad (3)$$

Where B is the backshift operator, a_t denotes the white-noise and assumes values between $(0, V_a)$, and $\Phi(B)$, $\delta(B)$, $\theta(B)$ are finite polynomials in B and have the multiplicative form:

$$\delta(B) = (1-B)^d(1-B^s)^{D;} \quad (4)$$

$$\Phi(B) = (1 + \Phi_1 B + \dots + \Phi_p B^P)(1 + \Phi_1 B^S) \quad (5)$$

$$\Theta(B) = (1 + \Theta_1 B + \dots + \Theta_q B^q)(1 + \Theta_1 B^S) \quad (6)$$

where s shows the number of observations per year.

The SEATS program decomposes xt as follows:

$$x_t = p_t + s_t + c_t + u_t \quad (7)$$

where: p_t, s_t, c_t, u_t are the trend-cycle, the seasonal component, transitional component and the irregular component, which also follow the ARIMA model, with deterministic effects added. The seasonal adjustment shows the particular case in which:

$$x_t = n_t + s_t \quad (8)$$

With $n_t = p_t + s_t + u_t$ representing the seasonally adjusted (SA) series.

4. The database used

The study is using data representing the quarterly closing prices for the period 01.03.1998 – 01.06.2011 (52 observations) of a number of 5 European stock indexes: AEX (Netherlands), ATX (Austria), CAC40 (France), DAX (Germany), FTSE (Great Britain) and one stock index in the United States – Dow Jones Industrial Average. The indexes selected characterize the evolution of some mature stock markets. The data used is taken from the Thompson Reuters database.

5. Results

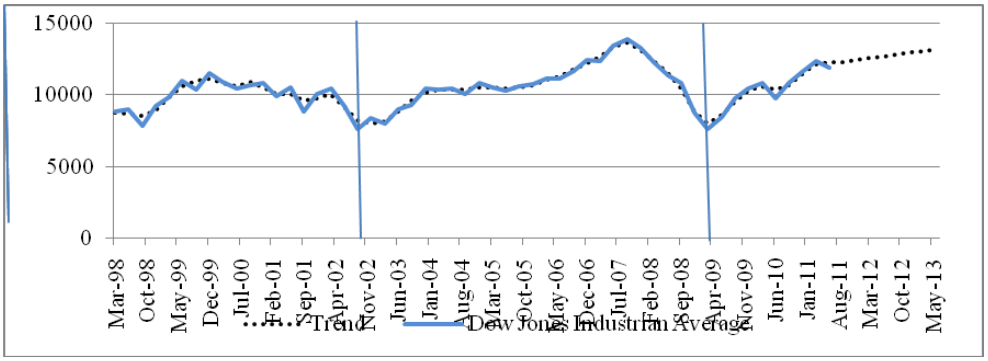
For the Dow Jones Industrial Average index, we decompose the time series by using the ARIMA model and we obtain its cyclical trend. We can distinguish 3 different periods in dynamics, each of them being characterized by a phase of growth followed by a phase of decline.

The period of quarter III 1998 – quarter IV 2002, marked by the Asian crisis effects in 1997-1998 when the trend's level reaches a minimum of 8545 points, and by the major impact of the dot.com crisis in 2001-2002, with the minimum level being reached in December 2002, the trend of the Dow Jones Industrial Average index reaching a value of 7986 points, by 39,19 % lower against the maximum of the analyzed period of 11116 points. The Asian crisis impact was felt at the level of capital markets in the United States due to the large exposures of American companies to Asian countries, exposures representing speculative investments. A dramatic drop in the prices of shares in the Asian zone caused massive losses for the foreign investors, particularly for the Americans. The cycle ends with a new period of stock minimums due to the bursting of the speculative bubble of companies geared toward the Internet field, the crisis being felt particularly in stock markets due to the previous significant increase in the prices of .com shares, judging by the significant interest shown by investors and their trust in the growth potential of the sector. Once the investors focused their attention on the financial position of these companies, positions which reflected the overvaluation of stock market prices, the trend of massive withdrawal from this sector prevailed, yielding an increasing volatility of stock quotations.

Quarter I 2003 – quarter I 2009, in March 2009 the index trend reaches a minimum of 7968 points under the impact of the major turbulences caused by the contemporary economic and financial crisis. This quotation represents a correction of 41.74 % compared to the highest level reached in September 2007 of 13679 points. The period is dominated by an unprecedented growth of stock markets and an impressive development of financial tools and institutions. The decorrelation of financial flows from the real economy, the unprecedented growth of financial innovation combined with regulatory systems that have not taken into account the newly emerged tools have greatly contributed to the occurrence of the first turbulences in the subprime markets of the United States at the end of 2007. What followed was considered to be an unprecedented economic-financial crisis.

The period of quarter II 2009 – quarter IV 2010 is marked by an ascendant trend, with the index trend quotation reaching a value of 11473 points at the end of 2010, with 43.98 % higher than it was at the beginning of the reporting period. For the Dow Jones Industrial Average index, the future trend estimation for the period January 2011 – 31.03.2013 indicates a trend of steady increase in the prices of shares in the United States. The period is marked by the effects of the current crisis, dominated by moments of extreme volatility. Although 2009 and 2010 have represented a recovery phase of the stock markets, the current crisis' impact continued to be felt on all financial markets globally. The sovereign debt crisis triggered in 2010 in Europe has caused new moments of instability and an important descendent trend in the second half of 2011.

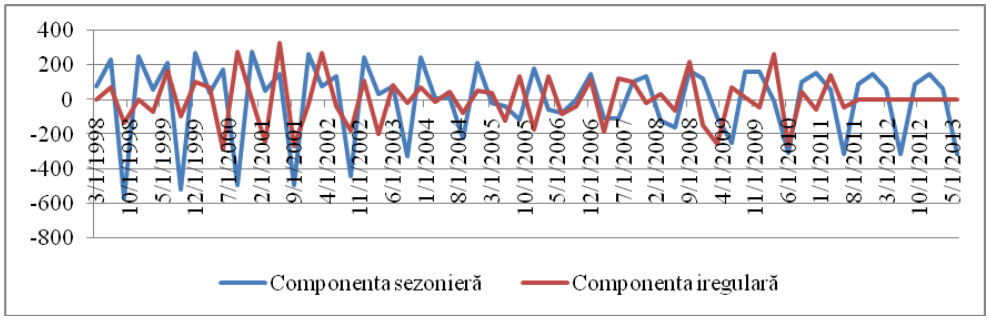
Figure 1: The dynamics of the Dow Jones Industrial Average index and trend component during 1998-2013



Source: author's own based on Thompson Reuters database

The irregular component shows the influence of the factors of instability which significantly affects the dynamics of the Dow Jones index. We notice their significant influence in quarter III 1998, in 2001 and 2002 and in the quarter I 2009, corresponding to the minimum periods reached by the quotation of the index analyzed.

Figure 2: The dynamics of the seasonal and the irregular components of the Dow Jones index during 1998-2013

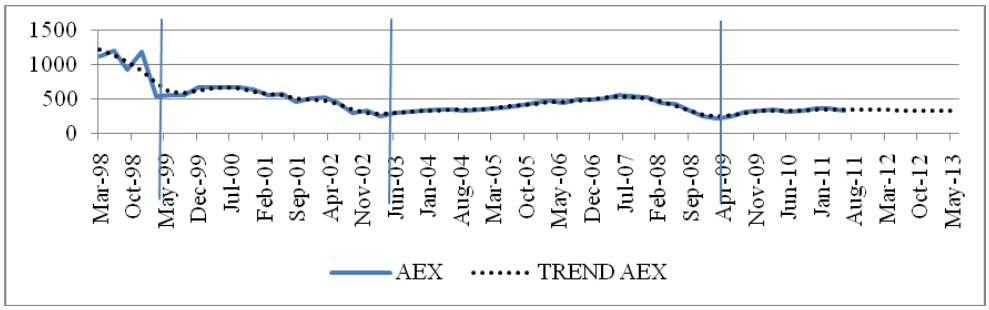


Source: author's own based on Thompson Reuters database

For the AEX index, the 3 cycles fall within the following periods:

- Quarter I 1999 – quarter I 2003. The index trend reaches a minimum in March 1999 due to the impact of the Asian crisis on stock markets. The period ends in March 2003, when a new minimum of the period is registered with a value of 280 points, at a distance of 58.46 % compared to the maximum of the period of 674 points reached in quarter II of the year 2000.
- Quarter II 2003 – quarter I 2009. In March 2009, the AEX index trend reached a value of 248 points, with 53.29 % lower than the maximum of the period analyzed. This dynamic is given by the effects of the contemporary economic and financial crisis that have significantly influenced the dynamics of stock markets worldwide.
- Quarter II 2009 – quarter IV 2010 represents a period of recovery, with the analyzed trend recording a positive evolution. In the quarter IV of the year 2010, the trend recorded an increase of 39.11 % compared to the beginning of the cycle. The future trend estimation of the AEX index for the period January 2011 – March 2013 shows a moderate decline.

Figure 3: The dynamics of the AEX index and trend component during 1998-2013



Source: author's own based on Thompson Reuters database

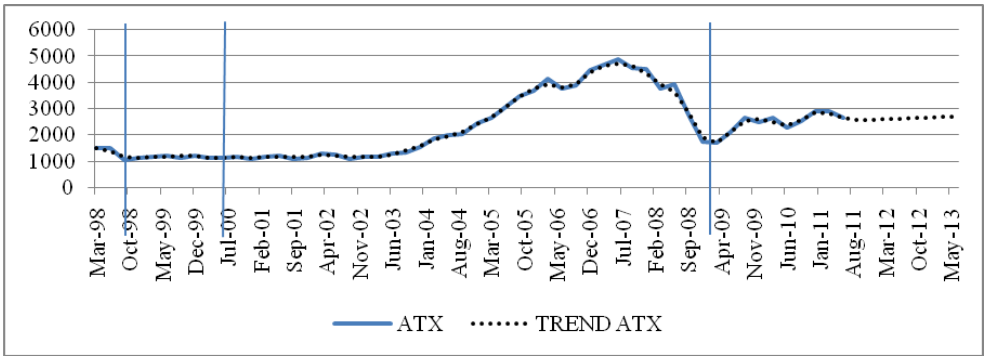
For the ATX index, the 3 cycles fall within the following periods:

- Quarter III 1998 – quarter II 2000, the index trend keeps a neutral evolution, with the minimum reached in the quarter II 2000 belonging to only 4.92 %, compared to the maximum of the quotation reached by the index trend in the period analyzed. Unlike the situations previously approached, the ATX index does not record a major influence under the impact of the crisis dot.com crisis, this aspect being explained by the low interest of Austrian investors

in investments in companies that have the Internet as object of activity, on the one hand, and reduced exposure to American investors' placements.

- Quarter III 2000 – quarter I 2009; unlike the previous period, the globalization of financial system both regionally and globally, the multiple interconnections achieved between investors and markets globally have caused disastrous effects on all capital markets in Europe. The ATX index trend recorded in the quarter I 2009 a minimum of the period of 1705 points, with 63.98 % lower than the maximum reached in June 2007.
- Quarter II 2009 – quarter IV 2010 represents a period of steady growth, 2010 being closed at a value of 2638 points, with 54.72 % higher than it was at the beginning of the cycle. For the ATX index, a correction is considered by the end of 2011, followed by a moderate increase by the end of quarter II 2013.

Figure 4: The dynamics of the ATX index and trend component during 1998-2013

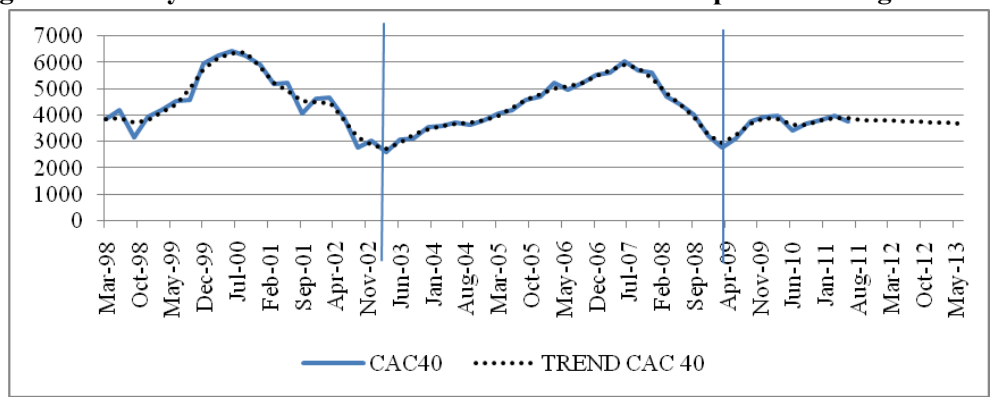


Source: author's own based on Thompson Reuters database

For the CAC40 index, the 3 cycles fall within the following periods:

- Quarter III 1998 – quarter II 2003, the minimum values of the index trend being determined by the two moments of financial instability caused by the Asian crisis in 1997-1998 and the dot.com crisis. In June 2003, the minimum value reached by the trend of the index analyzed belongs to a value of 2618 points, with 59.39 % lower than the maximum value reached during this period in June 2000.
- Quarter II 2003 – quarter I 2009, a period characterized by the boom and bust phenomenon, by the excessive increase in the prices of shares, especially after December 2004. The start of the contemporary economic and financial crisis has led to the stock markets' collapse, the trend of the CAC40 index reaching a minimum in March 2009, with a lower value of 53.75 % compared to the maximum of the period reached in June 2007.
- Quarter II 2009 – quarter IV 2010, a period characterized by a trend recovery of the CAC40 index. For the CAC40 index, after the recovery period in 2011, a period of decline is estimated, reaching in quarter II 2013 a lower level than that reached at the beginning of 2011.

Figure 5: The dynamics of the CAC40 index and trend component during 1998-2013

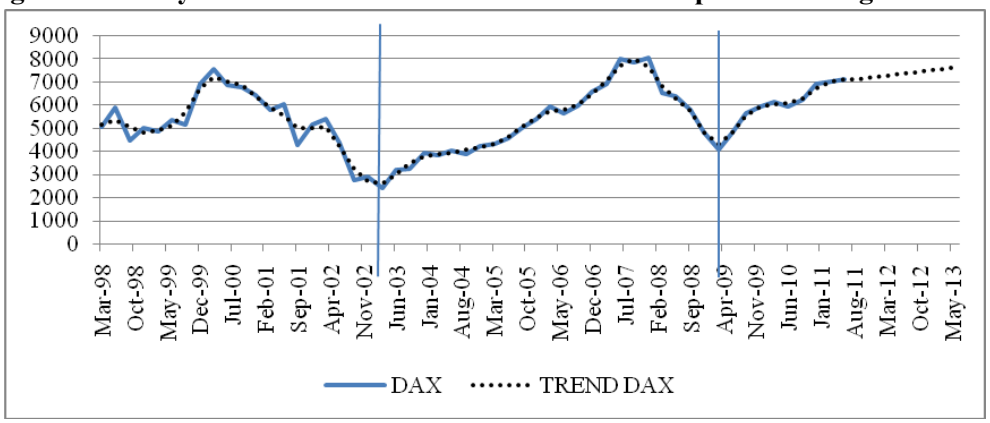


Source: author's own based on Thompson Reuters database

For the DAX index, the 3 cycles fall at the following periods:

- Quarter IV 1998 – quarter I 2003, the cycle's ends representing the minimum values of the DAX index trend within the period analyzed, under the influence of instability factors occurred in most developed stock markets. March 2003 ended by a minimum reached by the trend, situated at a distance of 68.11 % from the maximum of the period reached in June 2000. We notice that the stock market of Germany recorded the highest correction associated with the first cycle from the sample studied.
- Quarter II 2003 – quarter I 2009, the minimum reached in March 2009 is situated at a distance of 50.99 % from the maximum reached in June 2007. We notice that in case of Germany, similarly to other stock indexes analyzed, the end of the second stock market cycle takes place in March 2009.
- Quarter II 2009 – quarter IV 2010, representing a recovery period of the trend, with the estimations resulted in the month of the study indicating that during January 2011 – June 2013, the index trend is characterized by powerful ascendancy.

Figure 6: The dynamics of the DAX index and trend component during 1998-2013



Source: author's own based on Thompson Reuters database

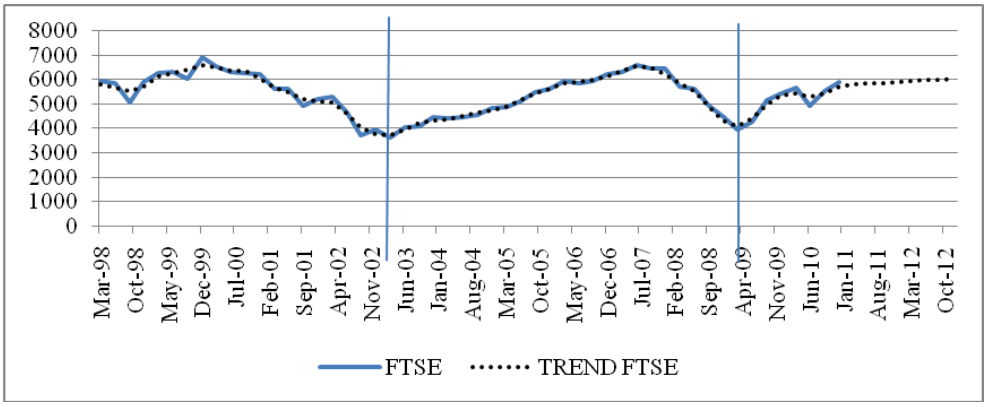
For the FTSE index, the 3 cycles fall within the following periods:

- Quarter III 1998 – quarter 2003, with ends representing minimum values of the index, thus, at the end of March 2003 the trend reaches the value of 3613 points, with 47.86 % lower than the maximum of the period from December 2009.
- Quarter II 2003 – quarter I 2009, the minimum reached in March 2009 is situated at a distance of 59.41 % from the maximum reached in June 2007. We notice that in Great Britain, similarly

to other stock indices analyzed, the end of the second stock market cycle takes place in March 2009.

- Quarter II 2009 – quarter IV 2010, the registered trend is an increasing one, with the study's results estimating a trend similar to the index DAX, marked by sustained growth for the period of January 2010-December 2012.

Figure 7: The Dynamics of the FTSE index and trend component during 1998-2013



Source: author's own based on Thompson Reuters database

6. Conclusions

The study achieved allows the identification, for the mature stock markets analyzed, of 3 distinct cycles during 1998-2011, cycle I – 1998 – 2002, cycle II – 2003 – 2008, cycle III – 2009 – 2002. The moments of instability triggered by the dot.com crisis and the current crisis have influenced significantly all the stock markets, the effects of the latter influencing also their future trend. Thus, we seize a decreasing trend in the medium term for the European indexes AEX and CAC40, and in the short-term for the ATX index. The estimation resulted in the case of the European indexes DAX and FTSE and the American Dow Jones Industrial Average index shows an increasing trend in the medium term.

Acknowledgements

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„Home high above and home deep down below?" Lending in Hungary*

Ádám Banai Júlia Király Márton Nagy

In Hungary in the pre-crisis period the bank sector initiated private credit boom significantly contributed to the accumulation of economic imbalances. Nevertheless, before the 2008 crisis no special regulatory measure was taken to mitigate the FX lending to unhedged borrowers, which was one of the main moving force of the credit boom. Depreciation of the HUF and the increased risk premium significantly deteriorated the customers' positions and resulted rocketing NPL-s. Recession, deteriorating portfolios, lack of efficient workout and the introduced strict regulation did freeze banking activity and the danger of recovery without lending did emerge. The paper compares the pre- and post-crisis lending activity and analyse both the lack of regulation in the pre-crisis and the inefficient regulation in the post-crisis period.

Keywords: FX lending, macro prudential measures, credit growth, financial stability

1. Introduction

The transformation of the banking system in Hungary reached completion in the second half of the 1990s. By then the vast majority of banks had been transferred to foreign owners. Owing in part to this structural specificity (i.e. the dominance of foreign banks[1]), retail[2] lending in Hungary remained marginal until the turn of the millennium. Banks' clientele was made up of primarily firms, not least because of the lack of a sound capital market to support corporate lending. The introduction of forint (HUF)-denominated, subsidized housing loans marked the first major change in lending trends. Since then, banks have focused increasingly on the retail segment. Moreover, the fierce competition for corporate clients helped to drive financial institutions in this direction. Household lending then saw a remarkably rapid boom, albeit with some disruptions, which endured until the onset of the crisis. Although the corporate loan portfolio also exhibited an accelerated growth rate, it didn't match the pace of household lending. In autumn 2008 the spillover of the financial crisis to Hungary broke this upward trend in lending. The Hungarian banking system and the relevant government institutions were faced with a serious challenge as the previously accumulated risks materialized.

Several papers have examined the consequences of the financial crisis both in Hungary and the region. Most of them focus on the channels of contagion identified during the crisis (Haas and Lelyveld, 2009), while others concentrated on the buildup of liquidity risks and its impact during the crisis (Banai et al., 2010a). In this paper, we primarily address the developments of lending in Hungary. Besides providing an overview of the trends observed, we seek to determine whether there were any developments in either the household or the corporate segment that would have warranted state

* The views expressed in this essay are those of the authors and do not necessarily reflect the official views of the (i) Magyar Nemzeti Bank (the central bank of Hungary) or its management, (ii) World Bank and its affiliated organizations, or (iii) the Executive Directors of the World Bank and the governments they represent. This paper was prepared as background to a forthcoming World Bank report titled "Golden Growth: Restoring the Lustre of the European Economic Model." All errors and omissions remain entirely the responsibility of the authors.

[1] The expression 'foreign banks' refer to institutions with strategic foreign owner. It is not include majority foreign owned banks held in shares scattered among owners on the stock market (e.g. OTP Group, FHB Group)

[2] Retail segment includes only household customers.

intervention in the period preceding the crisis. In addition, we present the challenges Hungarian authorities had to face as a result of the crisis and the tools they applied in efforts to overcome them.

In our analysis we distinguish among three main periods. In the first part of section II we analyze lending in Hungary before 2004. The end of this period was marked by the turnaround observed in lending to households. This is the beginning of the foreign-exchange lending boom. The second part of the section addresses the upswing phase: the period stretching to the beginning of the crisis. In the rest of section II we present, first, the liquidity risks building up alongside lending risks and, second, a number of measures that, based on international experience, may be suitable for countering credit booms. In section III we describe the developments observed since the onset of the crisis – in particular, the challenges Hungary is faced with in the area of corporate and household lending.

2. Precrisis lending: The accumulation of risks

2.1. Period of convergence (from the beginning to 2004)

In our analysis, one of the main questions is whether lending in Hungary was healthy in the observed periods. An excessive credit expansion may carry a number of risks. On the one hand, the expansion might be caused by increasing interbank competition. Shrinking margins may force banks to take bigger risks than before to maintain profitability. From the side of banks, credit expansion may thus lead to the buildup of a high-risk portfolio. On the other hand, credit expansion might be driven by unreasonably optimistic expectations regarding economic activity. This may result in excessive indebtedness and a jump in consumption. In emerging markets the rapid growth in lending is often accompanied by a significant appreciation of the local currency and soaring asset prices. The inevitable lending deceleration, in turn, generates a sharp fall in asset prices. As a result, the economy may sink into recession. In the worst-case scenario, the credit boom may trigger banking and currency crises with harsh adjustment consequences (IMF, 2004).

2.1.1 Corporate segment

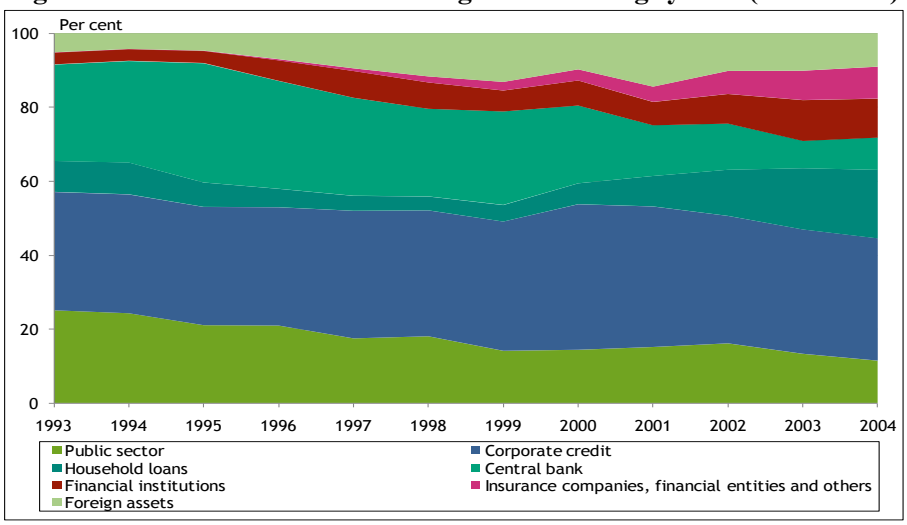
Over the observed period, the structure of the domestic banking system was largely shaped by the competitive advantage local banks enjoyed when entering the retail market. In fact, nonresident market players did not make much of an effort to alter this situation (Móré and Nagy, 2004).

The entry of foreign banks into the retail segment was limited by numerous factors besides the inherited competitive advantage of domestic banks. One such entry barrier was information asymmetry, which characterized household lending due to the short credit history of Hungarian households. Domestic banks were less affected by this problem, as their continuous participation provided them with far more information on customers. Those banks which were purchased by their foreign owners during the privatization process was not active in the retail segment before the privatization so they did not have that knowledge. The other important factor lies in the special needs of the household segment. In order to reach and adequately serve potential clients, a far more extensive branch network and staff capacity was needed than for the corporate segment (Móré and Nagy, 2004). For a long time, the associated high costs prevented foreign banks from entering this market or reinforcing their presence.

Due to the retail market's high entry costs, foreign banks focused initially on the corporate segment. Expansion in the corporate segment was supported by the arrival of multinational firms, the appearance of "home-host" relations in the corporate segment, and an upswing in external trade.

Moreover, foreign banks, which did not inherit low-quality corporate portfolios from the pretransition period and had experience in the field of commercial banking, could offer more favorable conditions overall than their domestic counterparts. Accordingly, until the beginning of the new millennium, participants of the Hungarian banking system were mainly engaged in corporate lending. In addition to government papers and receivables from the central bank, corporate loans were the most important contributors on the asset side (Figure 1).

Figure 1: Asset structure of the Hungarian banking system (1993–2004)



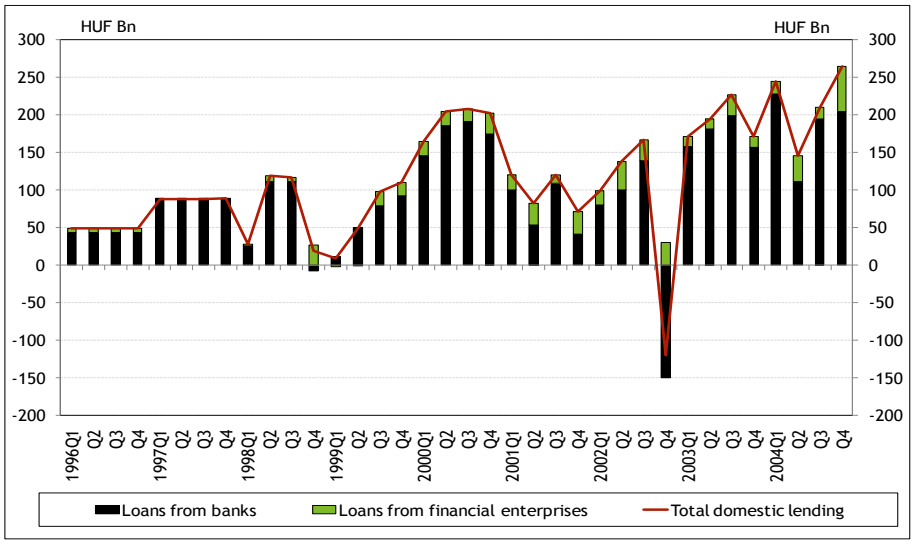
Source: Magyar Nemzeti Bank (MNB) data.

On the borrowers side, loans had/have a key role in funding firms. Owing to the underdeveloped capital market, the ratio of securities other than shares is still below 2 percent on the liability side of firms, and it has remained broadly unchanged since the transition. Accordingly, loans represent the main external liabilities. By the end of 2004, the share of loans on the liability side of the corporate sector rose to over 30 percent, compared to 18 percent at the beginning of the 1990s. Besides the domestic banking system, direct borrowings from abroad also contributed significantly to this growth. While they also represent a high share within net inflows, their magnitude should be handled with caution. Occasionally, the inflow of foreign funds may be related, for instance, to the liquidity management of foreign parent companies rather than the financing of business operations (Figure 2).

Due to the high risks of a credit boom, several authors set out to examine whether the credit expansion experienced in certain countries entailed excessive credit growth or such growth in equilibrium. In relation to Hungary, Kiss et al. (2006) provided guidance as regards the soundness of the credit growth of the period before 2005. It is important for the purposes of our analysis that the study (for methodology see Box 1) reviews the corporate sector and the household sector separately. The period stretching to 2004 suggests that the ratio of corporate credit to gross domestic product (GDP) did not exceed the level justified by macroeconomic variables. We supplemented the chart presented in the study of Kiss et al. (2006) with the median of country constants. Considering it as an equilibrium path, the chart reveals that the corporate credit/GDP ratio was below the equilibrium level. At the same time, its dynamics deviated from that of the equilibrium path; its level gradually approached the equilibrium level (Figure 3). Nonetheless, based on the model, credit expansion cannot be considered excessive in the period under review.[3]

[3] The study does not take account direct borrowings from abroad, which distort the results somewhat. This notwithstanding, we believe that the conclusion holds true.

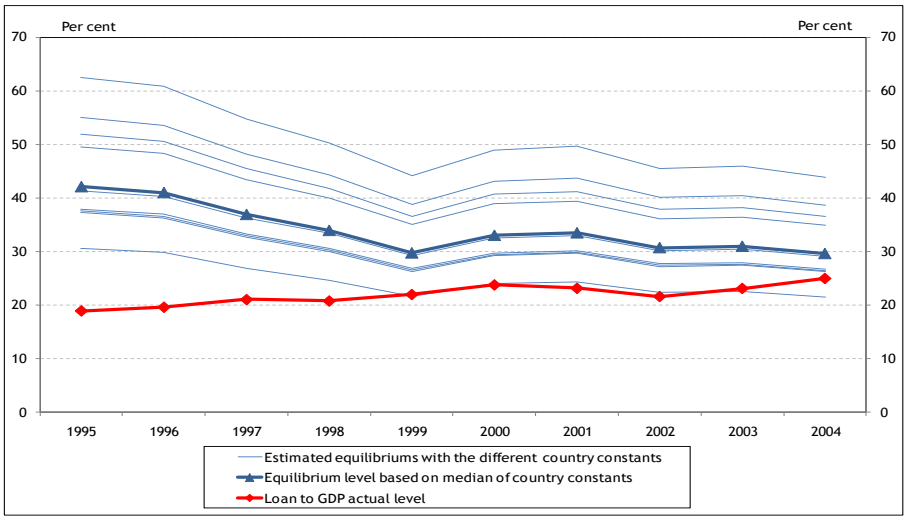
Figure 2: Net change in loans outstanding to nonfinancial corporations



Source: MNB data.

Note: "Banks" includes banks, branches, and cooperative credit institutions. Direct loans from abroad are not presented. The high volatility they typically exhibit is often unwarranted by real economic activity and merely reflects the internal liquidity management of the corporate group. The outstanding amount of direct foreign loans was marginally less than domestic loan volume.

Figure 3: Estimation of equilibrium credit/GDP of nonfinancial corporations



Source: Kiss et al. (2006); authors' calculations.

Note: we have plotted out the out-of-sample equilibrium levels with different country constants and also calculated a level based on the median of country constants.

Box 1: The identification methodology of equilibrium credit-to-GDP levels based on Kiss et al.

The identification of the equilibrium credit-to-GDP levels is based on a two-step out-of-sample method. In the first step, eurozone data was employed for panel estimation using the pooled mean group (PMG) estimator. In the second step the estimated long-run parameters (structural relationship) was used for the calculation of the equilibrium level of Hungary's credit-to-GDP.

At the estimation it was assumed that the long-term relationship is the same in every examined country, but the short-term dynamics and the constant can differ across countries. Specifically it means that in the estimation of the equilibrium credit-to-GDP, the estimated parameters of the explanatory variables assumed to be the same; however the dynamics around the equilibrium, hence the constant in the equation are allowed to differ. The explanatory variables for the estimation of equilibrium credit-to-GDP were the short-term real interest rate, the GDP and inflation.

Finally, for Hungary we used the common long-term parameters on the Hungarian data. Choosing the country-specific constant was less straightforward. Therefore, we decided to plot out-of-sample equilibrium credit estimates using all country-specific effects.

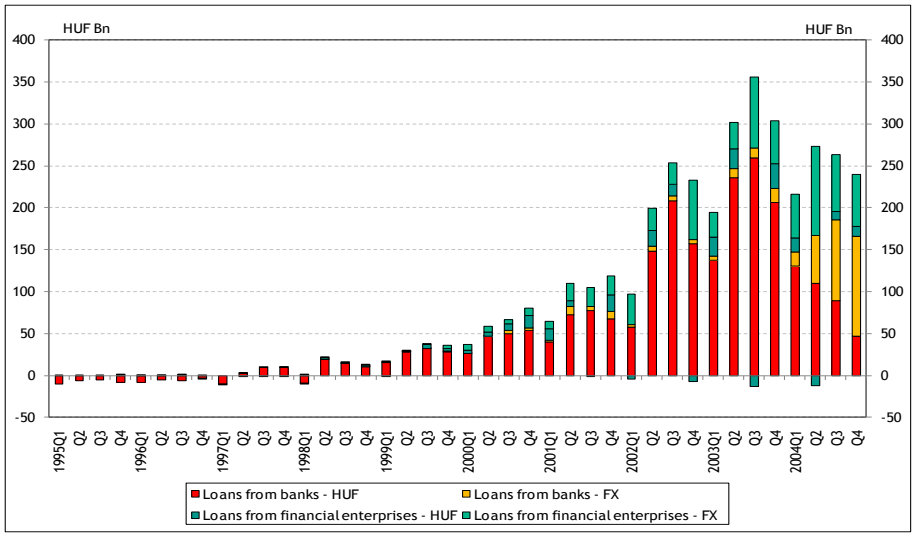
2.1.2 Retail segment

During the transformation of the banking system in the 1990s, lending to households in Hungary was marginal. For the reasons described above, foreign-owned banks were not active in this market segment and household customers were mainly served by a handful of banks that remained under domestic ownership. Consequently, the net flow of credit to retail customers remained at very low levels until the turn of the millennium. The new millennium represented a turning point in the attitude of foreign banks present in Hungary. Fierce competition began to chip away at the profitability of the corporate segment, while positive growth prospects and households' optimistic expectations generated burgeoning demand for banking products from the household segment. The newly established institutional conditions for mortgage lending, as well as the lower interest rates induced by the state-subsidized housing loan system, also contributed to the pickup in lending. As a result of the latter, in the early 2000s new loan disbursements were dominated by state-subsidized forint loans. Retail foreign currency lending also appeared in Hungarian financial intermediation, although financial enterprises[4] were the sole providers of this product at the time. Indeed, typically the financial enterprises of foreign-owned banks offered foreign-currency-denominated loans to households, mainly to finance vehicle purchases. Thanks to parent bank relations, the owner bank was able to provide them with the required foreign currency funds (Banai et al., 2010a).

It was only in 2004 that foreign currency lending rose noticeably in banks' mortgage lending. In response to news about a drastic tightening of the subsidy scheme on forint-denominated mortgage loans, 2003 saw a substantial surge in demand for this product. In 2004, however, a new product type – foreign-currency-denominated mortgage loans – played an essential role in maintaining the previous level of lending. Net credit flow in 2004 still fell short of the level observed in the previous year, and its structure changed as well: the share of foreign currency loans gained ground (Figure 4). The change in 2004 did not increase the vulnerability of the banking sector substantially in itself; however, it was apparent that its potential evolution into a trend could pose significantly increased risks to financial stability (MNB, 2004).

[4] Financial intermediaries that do not accept deposits but their main business is raising funds to lend (e.g. leasing companies)

Figure 4: Net change of loans outstanding to households by currency breakdown

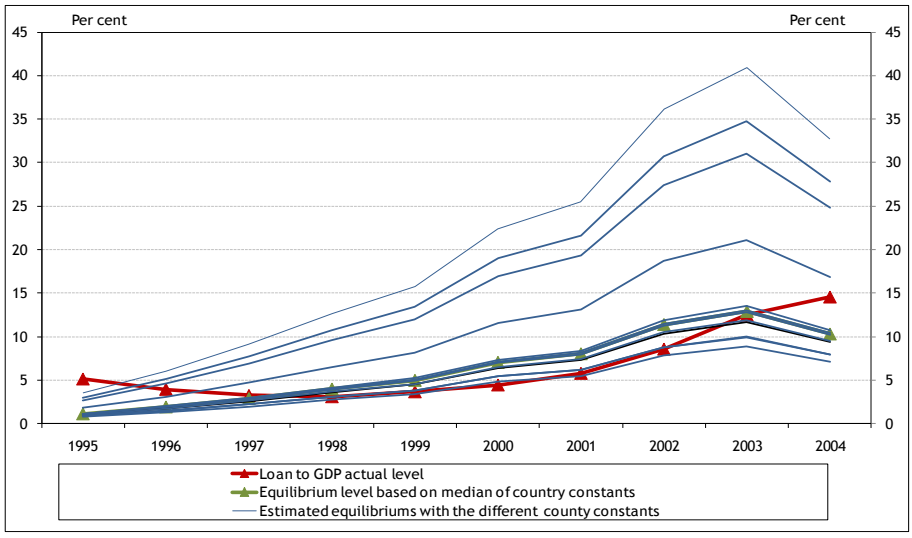


Source: MNB data.

Note: "Banks" includes banks, branches, and cooperative credit institutions.

As was the case with the analysis of corporate lending, we use the results of Kiss et al. (2006) to determine the occurrence of a credit boom in the household sector. Again, we supplemented the equilibrium paths based on country constants with a median path. The chart (Figure 5) reveals that in the case of households, the actual credit/GDP ratio exceeded the equilibrium level toward the end of the period, which can be attributed to two factors. On the one hand, as shown above, the announced tightening of the state subsidy scheme and the resulting borrowings brought forward to 2003 led to a surge in household indebtedness. On the other hand, while the growth rate of the loan portfolio decelerated in 2004, on the basis of macroeconomic variables, the model would have justified a decline in proportion to GDP. This deviation from the equilibrium path, however, can be still explained by convergence. In turn, it is hard to explain a decline in the equilibrium path driven by high nominal interest rates in the case of a transition economy. Consequently, in the review period there was no credit boom in the case of households; however, the risk of its emergence was greater in this sector than in the corporate sector.

Figure 5: Estimation of equilibrium credit/GDP of households



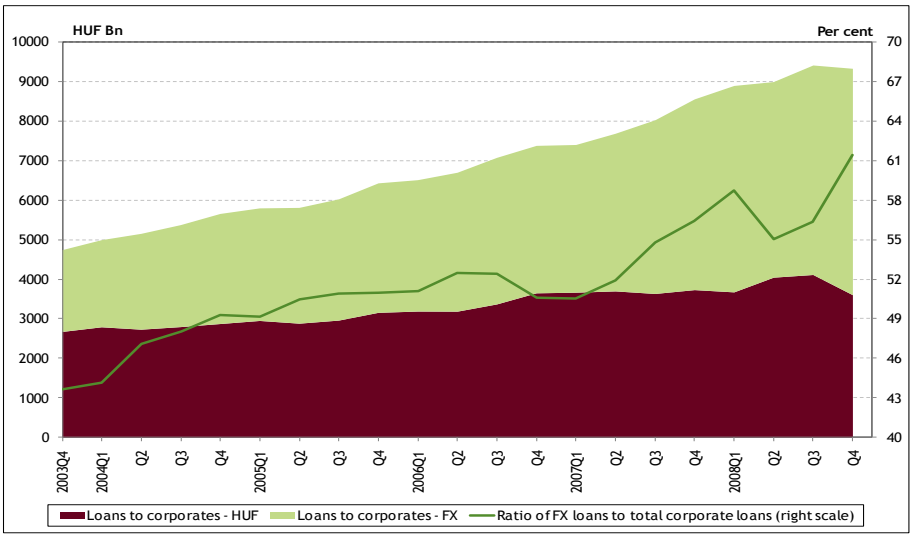
Source: Kiss et al. (2006); authors' calculations.

2.2. Period of excessive credit expansion (2004–2008)

2.2.1 Corporate segment

2004 marked the end of the era of state-subsidized, forint-based housing loans previously dominant in household lending, and banks started to offer new, foreign-currency-denominated mortgage loan products. In corporate lending we could not identify such a clear-cut turning point. Indeed, this separation of the periods was justified by developments in household lending. The share of foreign-currency-denominated loans within the total corporate portfolio was rather significant even before 2004. This was a natural consequence of the fact that in a small, open economy such as Hungary's, a large number of corporations have revenues in foreign currency; in other words, they have a natural hedge against exchange rate exposure. However, the share of foreign currency loans in net credit flow gradually increased between 2004 and 2008. The ratio of foreign currency loans to the total loan portfolio increased above 60 percent from around 40 percent in the observed period (Figure 6).

Figure 6: Loans to non-financial corporations and ratio of FX loan to total corporate loans (2004–2008)

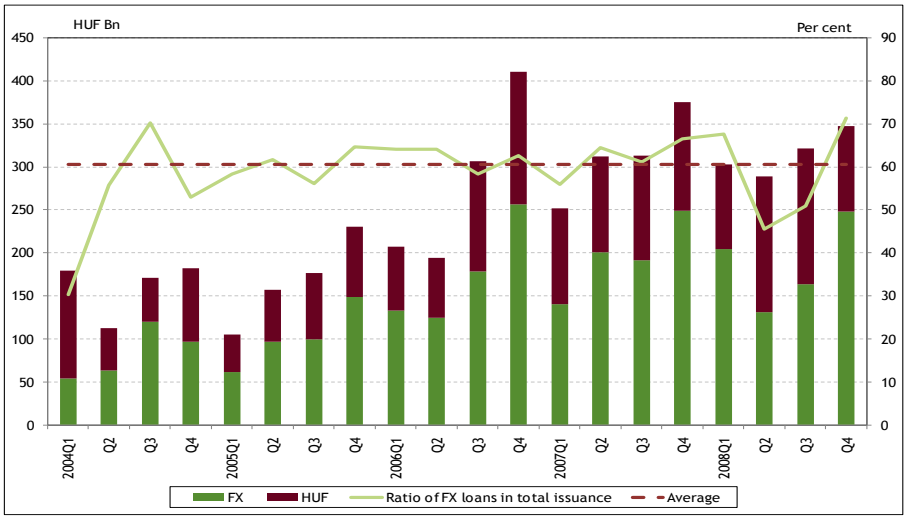


Source: MNB data.

Note: Adjusted for exchange rate effects. Foreign loans are not presented. The high volatility they typically exhibit is often unwarranted by real economic activity and merely reflects the internal liquidity management of the corporate group.

This increasing dominance of foreign currency lending after 2004 could not be attributed any more simply to the hefty foreign currency revenues of the corporate sector. As the 2006 issue of the *Report on Financial Stability* (MNB, 2006) pointed out, an increasing portion of foreign currency loans was unhedged against exchange-rate risk. The analysis of micro, small, and medium-size enterprises appears to support this view. These companies are active mostly in the domestic market, and since their risk management is typically less sophisticated, they are often unhedged against exchange-rate risk when taking out foreign currency loans. This notwithstanding, 60 percent of long-term loans (with a contractual maturity of over one year) were denominated in foreign currency in the review period (Figure 7). This confirms the conclusion of the Magyar Nemzeti Bank (MNB). Thus, before setting out to examine the growth rate, we may conclude that borrowers without a natural hedge posed an increasing risk to the corporate portfolio. In case of an exchange-rate shock, this exchange rate risk represents an increasing credit risk for banks and hinders the growth of the real economy.

Figure 7: New disbursement of loans to SME sector broken down by currency



Source: MNB data.

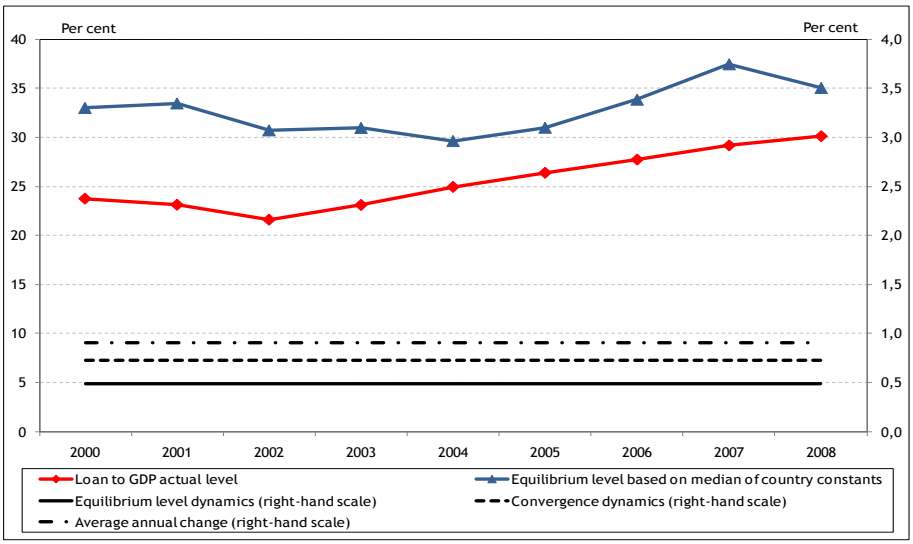
Note: SME = small and medium-size enterprises.

As in the previous section, we rely on Kiss et al. (2006) in our analysis of the risks associated with the credit growth. However, since the cited study does not cover our review period, we drew up the equilibrium paths until 2008 based on the method described in the study. The credit/GDP ratio fell short of the equilibrium level defined by the median even during the period ending in 2008. This suggests that corporate lending was not subject to excessive growth.

As indicated above, actual level does not include direct foreign loans. For this reason, it is worth comparing the observed growth rate of credit/GDP with the growth rate of the indicator justified by the equilibrium path. Since the ratio of foreign direct loans to domestic loans is nearly constant, the dynamics of total loans (i.e. the sum of foreign loans and domestic loans) do not differ significantly from the dynamics of domestic loans. Another reason for doing this analysis is the fact that, owing to the large deviation of country constants, the definition of the equilibrium level is surrounded by greater uncertainty than that of the equilibrium dynamics. In addition, we also defined a rate of convergence.[5] The result: average corporate credit growth was found to exceed the rate seen along the equilibrium path. Although, it was only marginally higher than the dynamics defined by the convergence path (Figure 8). Consequently, we cannot certainly say that there was a credit boom in corporate lending; most likely the rapid growth observed in this segment was driven mainly by the convergence process. However, due to the clients without a natural hedge, risks have built up in the corporate loan portfolio before the crisis.

[5] To this end, we examined how much time the countries examined in the model needed to reduce deviation from the equilibrium by half. We considered the result as an appropriate rate of convergence. Since the period 2004–08 would have been too short for this analysis, we assumed that convergence started in 2000.

Figure 8: Estimation of equilibrium credit/GDP and credit dynamics of nonfinancial corporations



Source: Kiss et al. (2006); authors' calculations.

2.2.2 Retail segment

The rise in retail foreign currency lending in 2004 was not an isolated phenomenon in the region. Therefore, numerous papers have been focused on its causes and consequences. Several of the papers dealt with the motivation of the demand side. Some conclude that one of the main reasons for foreign currency lending is the differential between domestic and foreign interest rates (Basso et al., 2007; Csajbók et al., 2010). However, a number of other factors may also contribute to the appearance and rise of foreign currency (FX) lending. In addition, Csajbók et al. demonstrate that the availability of long-term, fixed-interest-rate loans in domestic currency reduces the indebtedness of households in foreign currency. According to the study, willingness to borrow in foreign currency would likewise decline if the monetary regime did not exhibit a "fear of floating" behavior: in other words, if households had more experience in interest rate volatility. Last, it is important for banks to have access to long-term savings in domestic currency, which also facilitates home currency lending.

Banai et al. (2010a) examine the motivations of the supply side. They argue that the expansion of foreign banks in the region and the nearly unlimited foreign currency liquidity also contributed to the rise of foreign currency lending. Indeed, large European parent banks provided their Hungarian subsidiaries with easy access to foreign currency financing. Moreover, striving to maintain their high profitability, banks appearing in the region were engaged in a risk-based competition for the household segment, which also encouraged foreign currency lending.

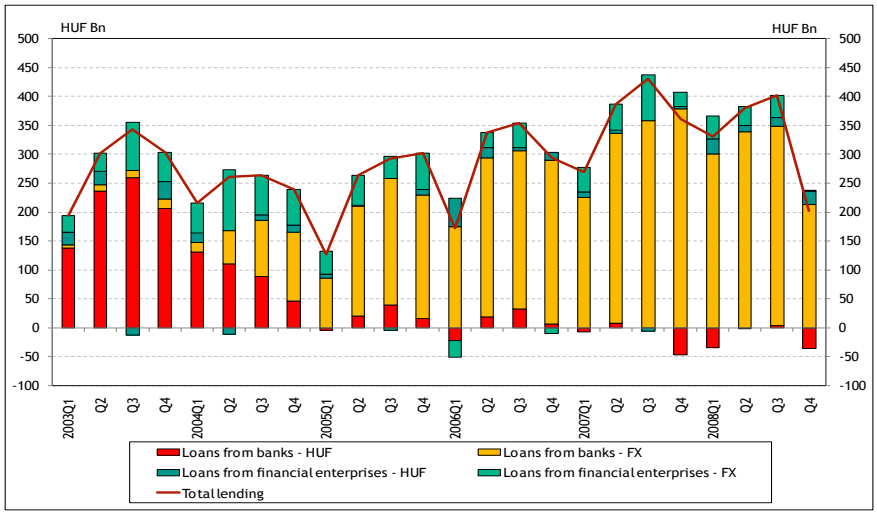
In Hungary the main trigger of the upswing in retail foreign currency lending was the drastic cutback in the state subsidy on forint-denominated housing loans.[6] This increased the interest rate differential between forint-denominated and foreign currency loans (in particular, Swiss francs – CHF[7]), which

[6] The study is not intended to examine either the reasons for the cutback, or its reasonability.

[7] In Hungary the spread of CHF lending could be explained by the important role of Austrian banks. CHF-denominated loans were popular products in Austria and the outstanding volume of CHF loans to non-bank sector is still the highest in Austria among EU countries. In Rumania, Austrian banks were not really active in the pre-crisis period until 2007. In Slovakia and Czech Republic, FX retail lending was not significant. Baltic States and Bulgaria maintain an exchange rate fixed to the EUR so EUR-denominated loans were more favourable than other FX products. In Poland, rapid growth of CHF lending slowed down due to tightening regulations. Nevertheless, the share of CHF loans in total loan portfolio is significant.

has been shown by previous research to be a driving force of foreign currency lending. Following its peak in 2003, the net flow of household loans declined temporarily in 2004; however, in 2006 it reached the 2003 level and continued to accelerate in 2007–2008 (Figure 9).

Figure 9: Net change of loans outstanding to households by currency breakdown



Source: MNB data.

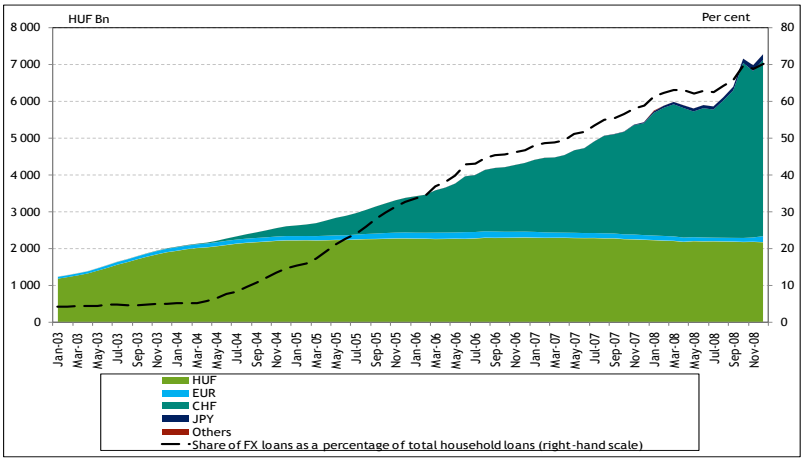
Note: "Banks" includes banks, branches, and cooperative credit institutions.

A specificity of Hungarian foreign currency lending was the fact that loans to households were almost exclusively denominated in CHF (Figure 10). In an attempt to secure the largest possible market share, foreign-owned banks initially entered into cost-based competition, which was subsequently replaced by risk-based competition. CHF-denominated loans gained ground as a result of risk-based competition (Banai et al., 2010a). Looking at the data recorded before October 2008 (the escalation of the crisis), the HUF/EUR exchange rate was only slightly less volatile than that of the Swiss franc. In contrast, Swiss interest rate levels were invariably lower than those prevailing in the euro area. Based on the former data, the lower initial installment amount associated with the lower interest rate appeared attractive even amid slightly higher exchange rate volatility. However, this ignores the fact that the Swiss franc had appreciated continuously since the 1970s, albeit at a different pace and with slight interruptions: initially against the Deutsche mark, and later also against the euro. Moreover, those having recourse to this product did not consider that, being perceived by investors as a safe haven, demand for Swiss-franc-denominated assets would surge during a potential crisis (MNB, 2010). Accordingly, in certain periods the volatility of the HUF/CHF exchange rate may significantly surpass that of the HUF/EUR exchange rate. Finally, debtors ignored the risk factor implied by the fact that the domestic monetary policy has little effect on the HUF/CHF exchange rate.

As a last chapter in foreign currency lending in Hungary, already overshadowed by the looming crisis, some banks began to issue Japanese yen (JPY)-based mortgage loans in late 2007. Even before the crisis, the Japanese interest rate level had been close to zero for a protracted period, resulting in even lower initial installment amounts than those of Swiss franc loans. However, the fundamentals of the European and the Japanese economy are not closely related. Consequently, the volatility of the JPY/HUF exchange rate was considerably higher than that of the EUR/HUF or the CHF/HUF exchange rates. Although the MNB and the Hungarian Financial Supervisory Authority (HFSA) warned the banks of the risks as early as the beginning of 2008 (MNB, 2008), it was only the worsening of the crisis that would eventually put an end to this unfavorable trend (Figure 10).

Besides, the spread of FX-denominated products risks was exacerbated by loosening credit conditions and standards. The loan-to-value (LTV) ratio for mortgage loans increased constantly and in many cases exceeded 100 percent. The banking system's average LTV ratio for the housing loan portfolio was above 70 percent at the end of 2008, while in 2004 it was only around 50 percent. The average payment-to-income ratio also increased, which was supported by the ever lower documented mortgage loans. Finally, increasing reliance on brokers as a sales channel also meant higher risks, because loans granted via their intermediation were characterized by significantly higher default rates (Banai et al., 2010a).

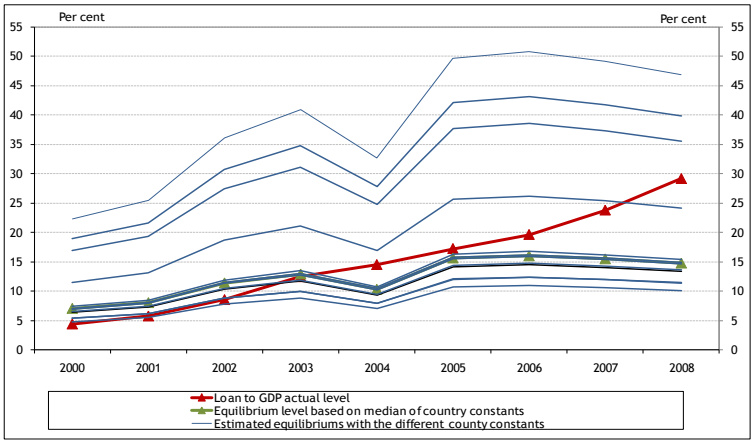
Figure 10: Currency structure of household loans



Source: MNB data.

The currency structure of the portfolio carried risks in itself. The question arises as to whether lending to households was affected by excessive credit expansion. As previously, we applied the method of Kiss et al. to find an answer. In the context of a sudden spike in lending, in 2003 the credit/GDP ratio rapidly reached the level of the equilibrium path. Owing to a moderate downturn in net flows in 2004-2005, the level of the ratio at the end of 2005 was still only slightly above the equilibrium. In 2006, however, developments in the portfolio deviated from the path justified by macroeconomic variables both in terms of dynamics and level. This growth accelerated further in 2007-08. Therefore, during the two years preceding the crisis there was clearly a credit boom in the household segment. Besides the hidden risks associated with the poor currency structure, the size of the accumulating portfolio imposed an excessive burden on households. This implied mounting risks to their debt servicing capacity (Figure 11).

Figure 11: Net change in loans outstanding to households



Source: Kiss et al. (2006); authors' calculations.

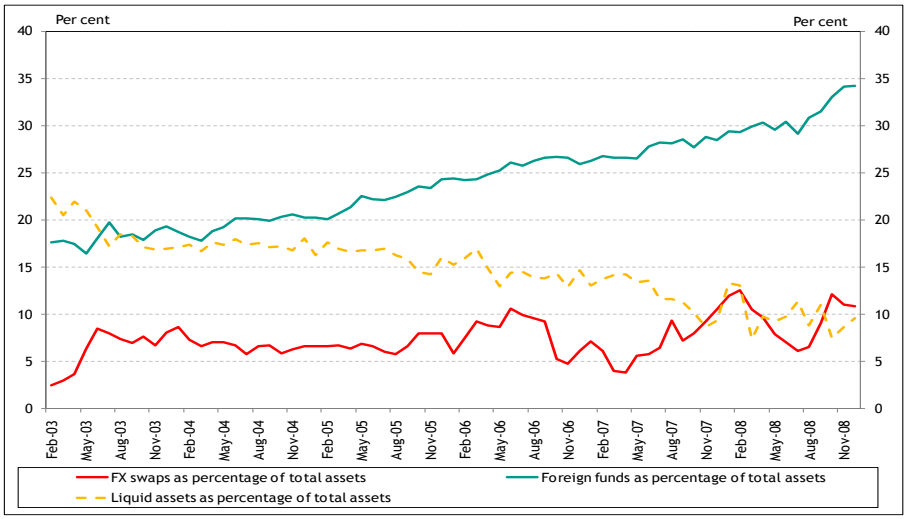
2.3. Financing risks

Owing to the credit boom and the currency structure of the loan portfolio, severe risks were building on the financing side as well. Since a number of studies (including Banai et al., 2010b) and several issues of the *Report on Financial Stability* have addressed this issue extensively, this paper is intended to merely touch upon the most important features.

The upswing in lending naturally goes hand in hand with convergence. Ideally, however, banks are capable of financing loans from internal savings. Accordingly, the loan-to-deposit ratio should be around 100 percent. In early 2003 this equilibrium prevailed in the Hungarian banking system. By the end of the year, however, the ratio rose to 110 percent, as the phase out of subsidized forint loans generated a sharp rise in net flow. Against the backdrop of the lending surge, the ratio rose nearly continuously and reached 160 percent by the beginning of the crisis. The dynamics of the loan-to-deposit ratio is in correlation with the share of foreign liabilities in the balance sheet. When the loan-to-deposit ratio rises above 100 percent, external funds are needed to replenish deposit funds. Developments in foreign liabilities confirm our previous statements. While their share was around 17 percent in proportion to the balance sheet total at the beginning of 2003, this value exceeded 30 percent by the onset of the crisis.[8]

Besides the increasing weight of foreign liabilities, risks were exacerbated by a growing reliance on the FX swap market. On the deposit side, Hungarian banks obtained liquidity predominantly in forint, which was conveniently used to close their open FX positions in the swap market. This allowed banks to obtain cheaper foreign currency liquidity. However, this meant higher funding liquidity risks. On the one hand, their excessive reliance on the swap market posed serious problems during times of market disturbances. On the other hand, foreign currency liquidity obtained in the swap market was generally of much shorter maturity than the on-balance sheet foreign currency funds, which increased renewal risks. Third, it led to a drastic contraction in the liquid assets portfolio of the banking system that serves to ensure that institutions are capable of meeting their obligations even in times of crisis. Despite all this, Hungary did not adopt any liquidity regulations aimed at mitigating these risks.

Figure 12: Ratios describing the liquidity position of the banking sector



Source: MNB data.

[8] The acceleration recorded in the last three months of 2008 primarily reflected parent banks' intentions to strengthen balance sheets.

2.4. Regulations: Why not?

As noted above, before the onset of the crisis, lending to households had carried serious risks both in terms of structure and volume, and had given rise to the accumulation of significant funding liquidity risks. This notwithstanding, Hungary did not adopt any regulatory measures aimed at the prevention of these negative developments. Below we attempt to find an explanation for this "inertia." Why did the regulatory authorities fail to react despite the MNB's nearly continuous warnings about the risks of foreign currency lending since the 2004 issue of its *Report on Financial Stability*? (For the legal relationship of institutions responsible for the financial stability, see Box 2)

We attempt to determine the pros and cons that may have been weighed as potential regulatory measures were contemplated. First, we examine the general consequences of regulations taken in response to rapid FX loan expansion from the perspective of macroeconomic and financial stability. We proceed to examine the advantages and disadvantages of individual regulatory measures. We structure the potential regulatory tools in line with Hilbers et al. (2005), also taking into account country-specific features.

Box 2: The role of institutions responsible for financial stability in Hungary

There are three different institutions (Magyar Nemzeti Bank (the central bank of Hungary), Hungarian Financial Supervisory Authority, Ministry for National Economy), in Hungary which are responsible for the financial stability. The legal relationship of the institutions is determined by the Central Bank Act (Act LVIII of 2001).

The MNB (central bank of Hungary), in cooperation with other competent authorities, shall support and shall contribute to the development and smooth conduct of policies related to the prudential supervision of credit institutions and to the stability of the financial intermediation system: it shall expose business and economic risks to the financial intermediation system on the whole, help to prevent the development of systemic risks, and to reduce or terminate systemic risks that may already exist. The President of the MNB may submit legislative proposals to the Government or proposals for initiating the legislative process, or to any member of the Government for adopting new regulations.

The microprudential supervisory power rests with the Hungarian Financial Supervisory Authority (HFSA), while the regulatory power is at the Ministry for National Economy. Based on this collective responsibility a new regulation taking effect on January 1st, 2010 established the Financial Stability Council (FSC) as consultative forum. Under its mandate high level representatives of the three authorities meet on a quarterly basis to discuss financial stability issues. The Council also has the right to call for formal regulation on a comply-or-explain basis.

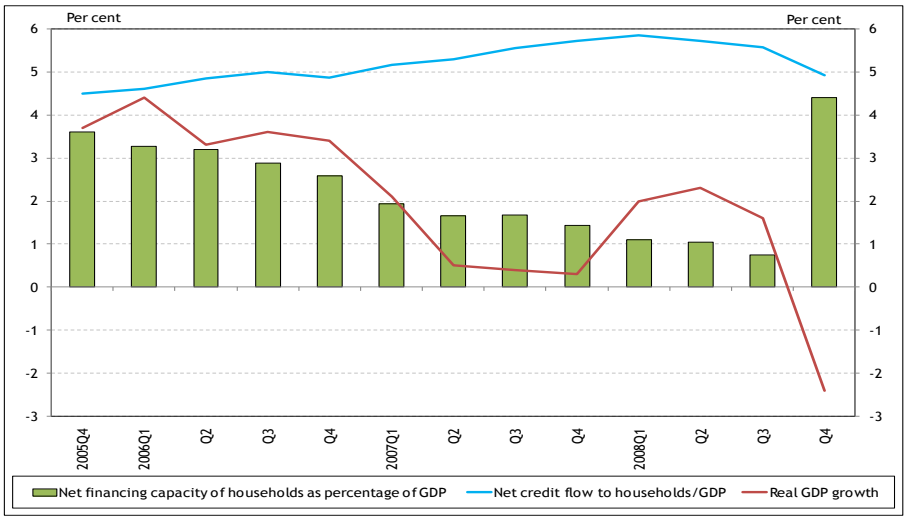
Under the Act on HFSA (Act of 2007/CXXXV.) this authority is mandated to collaborate with the central bank in mitigating and managing systemic risk. Since January 1st, 2010 the authority has the right to temporarily (90 days) suspend services, activities or trading at sectoral level in pre-emptive nature whenever any of these activities threat systemic stability.

In conclusion, while the central bank is entitled with financial stability oversight, it has no regulatory power, so to mitigate the identified risk it has to consult the two other authorities (the Ministry of National Economy and the HFSA) in the format of the Financial Stability Council so as to initiate any regulatory measure or supervisory intervention.

2.4.1 Macroeconomic impact

Over the short term, restricting foreign currency lending or making it more expensive temporarily reduces the household sector demand, depending on the substitutability between forint-denominated loans and foreign currency loans. The weakening of household demand reduces the external financing requirement, decelerating economic growth somewhat. In the short run, the deceleration leads to the deterioration of profitability in certain segments of the corporate sector. As such, the adoption of a regulatory measure during the credit boom would have been an extremely sensitive issue politically. From 2006, on the back of the fiscal adjustments, the income position of households deteriorated, which households tried to offset by borrowing. Nevertheless, economic growth took a significant downturn. Had lending to households been restricted by regulatory measures, this downturn would probably have been even more pronounced (Figure 13). Eventual accession to the euro area some years later also meant a regular counterargument. Exchange rate risk would not have been eliminated totally with this while most of the loan portfolio is denominated in CHF.

Figure 13: Real GDP growth, net financing capacity, and net credit flow of households



Source: MNB data.

Moreover, in the short run, the tightening of foreign currency lending would have resulted in higher yields and a weaker exchange rate, since households would have borne only a smaller part of the exchange-rate risk associated with the financing of the current account deficit. But over the long term, the prevention of a credit boom promotes a sounder growth structure.

2.4.2 Impact on the financial intermediary system

The most notable risk posed by the tightening of foreign currency lending is its short-term impact on banks' portfolio quality. Raising the cost of foreign currency loans and the depreciation of the exchange rate would have caused a sharp rise in installment amounts, increasing customers' probability of default. As an additional risk, in the case of housing loans, the fall in credit supply resulting from waning demand for foreign currency loans and portfolio deterioration may have generated excess supply and hence price devaluation in the real estate market.

Again, **over the long term**, the positive effects appear to be dominant. Financial stability is reinforced, on the one hand, by the moderation of the indirect credit risk assumed by the banking system as a consequence of the exchange rate risk of customers and, on the other hand, by the reduced vulnerability of the economy—that is, the improved external balance.

2.4.3 Assessment of specific measures

Below we provide a brief overview of a number of relevant tools applied in international practice for the purpose of restraining excessive foreign currency lending. In addition, we examine the arguments that may have been considered in favor of or against such tools during the time of the Hungarian credit boom.

1) **Monetary measures**: As the central bank and the financial supervisory authority are two separate institutions in Hungary, the best tool the central bank can use to impose restrictions on foreign currency lending is a change in the parameters of reserve requirements. The central bank may increase the cost of foreign currency loans by defining a higher reserve requirement or a lower interest rate (or both) on foreign currency liabilities. The disadvantage of this measure is that it is easily circumvented by banks through the creation of synthetic FX position (for example, forint funding combined with FX swap or currency forward transaction). In this case financial derivatives would have to be subjected to reserve requirements as well. However, besides making even transactions unrelated to foreign currency lending expensive, such a step could also have significant market effects. Banks may also try to avoid the brunt of the negative effects by selling certain components of the portfolio to other members of the same bank group (as we have seen in international practice). Finally, modifying the rules of reserve requirements would have represented a step backward in the harmonization of European monetary policy instruments.
2) **Administrative measures**: good examples of these instruments include a total ban or restrictive limits on loans unhedged against exchange-rate risk. The adoption of such measures limits or completely restrains foreign currency lending, but only temporarily. Such harsh interventions encourage evasion and intensify cross-border financial intermediation. Posing a severe threat to stability, the sharp decline in new loans could drastically deteriorate banks' profitability. This would also be detrimental to interbank competition and bank efficiency. Recourse to such tools is not only incompatible with European practice, it is not a typical course of action in developed countries either, which serves as an argument against the adoption of such measures.
3) **Prudential measures**:
    - *Higher capital requirements*: several countries relied on this tool in an attempt to raise the costs of foreign currency loans, and hence impose a restriction on such lending. As regards Hungary, this idea was generally viewed as ineffective, given the extremely high capital adequacy ratio prevalent in the banking system even before the crisis. In addition, it was generally agreed that a measure like this would encourage transformation of subsidiaries of foreign banks into branch offices or steer lending toward nonbank financial intermediaries.
    - *Tightening banks' net open FX position limits*: on the one hand, this may somewhat raise the cost of foreign currency loans; on the other hand, it may reduce the maturity risks stemming from synthetic positions. At the same time, the measure would reduce the risk of banks' excessive reliance on a specific financial market. However, it appeared doubtful whether such a step would yield any noticeable change. In addition, it may have hindered the development of financial markets.
    - *Tighter nonprice minimum eligibility criteria* (LTV, payment-to-income—or PTI): as we have seen, these ratios increased permanently in Hungary before the crisis. With carefully chosen limits, such a step could reduce lending in foreign currency; moreover, it would

affect the riskiest segments. However, even this measure could be circumvented by taking advantage of cross-border services.

- *Asset-side liquidity ratios*: this would include the mandatory holding of certain assets as a percentage of the balance sheet total, liquid funds or own funds. On the one hand, this makes lending more expensive; on the other hand, it facilitates the holding of more substantial liquidity buffers, which in turn increases shock-absorbing capacity. However, it is detrimental to growth, as the requirement is to hold liquid assets rather than loans.
- *Maturity mismatch regulations*: these are designed to prevent excessive reliance on short-term funds, thereby making lending more costly. Regulations of this type imply a pressure to create a healthier balance sheet structure, which reduces financing risks. They succeed in curbing excessive credit expansion only if "term premia" are not too marginal.

4) **Fiscal measures**:
   - *Imposing taxes* on unhedged foreign currency lending is the most obvious option in this group of instruments. As a result, this type of lending becomes more expensive and less attractive. However, its disadvantage is that it withdraws funds from the institutions performing high-risk activities, further deteriorating their financial position.
   - *Elimination of lending-related state subsidies* for these types of loans is another fiscal option. As a result of this step, loans become more expensive and thus loan issuance would indeed decline. It would be a hard sell, however, from a political perspective.

As we have seen, a wide variety of tools were available through which Hungary could have attempted to restrain excessive foreign currency lending. Although each measure had certain disadvantages, these were not always convincing as arguments against the specific regulation. While the applicability of monetary policy instruments was questionable, some of the prudential or fiscal measures could have been helpful. However, in these considerations more significance was attached to short-term negative growth effects than to long-term benefits.

3. Lending after Lehman: Regulatory measures and future challenges

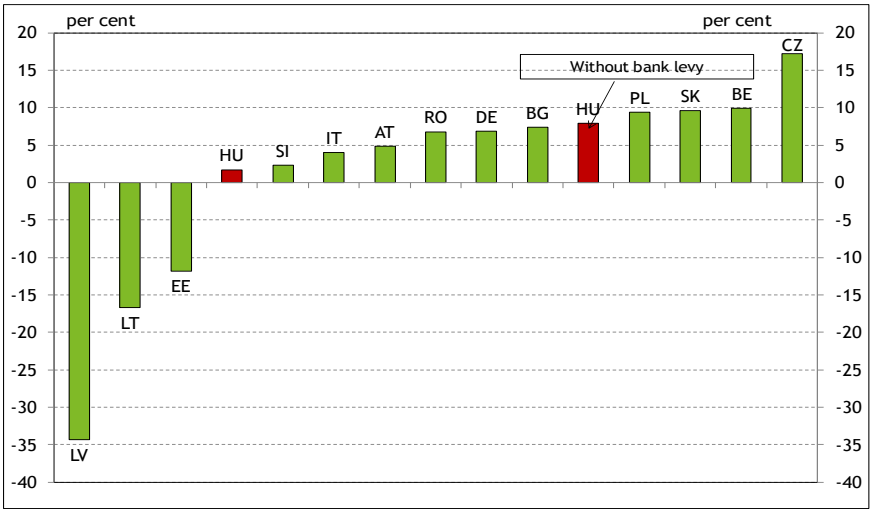
In the period following the collapse of Lehman Brothers, the global financial crisis escalated in Hungary as well as elsewhere. Practically all investors fled from markets deemed risky, posing a threat to both public financing and the financing of the banking system in Hungary. As a consequence of the country's significant need for international funding and the extreme vulnerability this entailed, the exchange rate depreciated substantially and, in the wake of the crisis, key financial markets (mainly government securities, FX swap and interbank markets) dried up.

In an effort to manage the liquidity crisis, steps were taken by the government and the central bank (for further details, see Appendix 1.). Besides ensuring the usual local currency funding MNB played the role of 'FX lender of last resort'. Stabilising the situation was impossible without the intervention of parent banks. They did not decrease but increased their exposure towards the country during the most intensive period of the crisis. At the same time, banks undertook large-scale adjustments. Initially, the corporate loan portfolio began to shrink, followed by a contraction in household lending. Thanks to the adjustments and the assistance received from parent banks, the banking system weathered the brunt of the first few months of the crisis. Confidence about the country gradually improved in the course of 2009.

Nonetheless, the underlying risks of the loan portfolio materialized as a consequence of the economic recession. Amid a continuous deterioration in the quality of the loan portfolio, banks suffered

increasing loan losses. Profitability was further deteriorated by the bank levy. Examples of such windfall tax can be found in other countries but the extent of the Hungarian one far exceeds the levies applied or planned in other countries. The major share of the levy applies to credit institutions, calculated based on their modified total assets for 2009. The levy is determined as 0.15 per cent of the tax base under HUF 50 billion and 0.5 per cent of the tax base above that. As a result, in 2010, profitability of the Hungarian banking sector was lower than in the countries of the parent banks and other countries of the region (except for the Baltic countries). Without the bank levy Hungary would be in the leader's group of Europe. If this low profitability remains for a longer period, in addition to banks' weakening ability to accumulate internal capital, Hungarian banks may suffer a competitive disadvantage in the allocation of parent banks' funds and capital (MNB, 2011).

Figure 14: ROE indicators of banking sector in international comparison



Source: MNB data.

Consequently, even as banks' liquidity position recovered gradually, their capital positions became a crucial issue on account of deteriorating profitability. While banks' capital positions remained safe from a stability perspective, the banking system has failed to support economic growth.

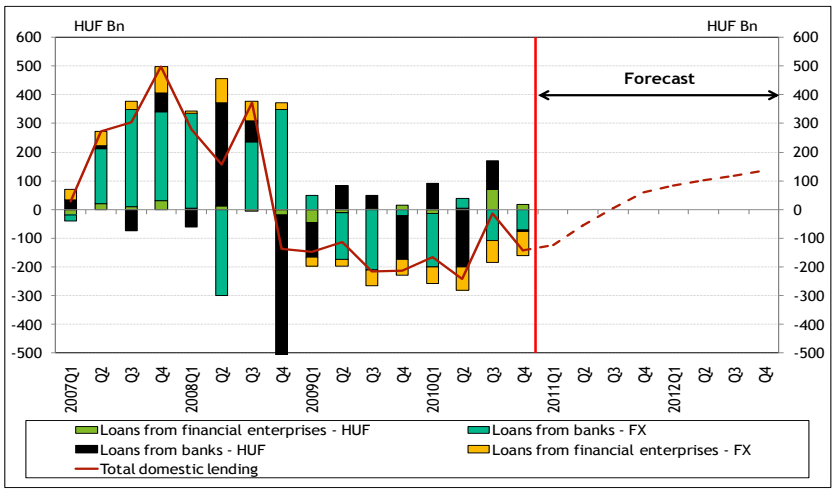
3.1. Corporate lending: Future challenges

In the initial period of the crisis, banks responded to mounting liquidity problems primarily by cutting back corporate lending. This was justified by several factors. As the average residual maturity of the corporate loan portfolio is significantly shorter than that of loans to households, in the short run it allows more robust adjustments on the part of banks. Since competition is much stronger in the corporate segment in the Hungarian banking system, margins are tighter and banks' profits are smaller on these loans. Finally, corporate loans usually have higher capital requirements than the mortgage loans constituting the bulk of the household portfolio.

From the last quarter of 2008, the corporate segment recorded a negative credit flow in each subsequent quarter. Although the economy started to recover as early as end-2009, this trend of negative credit flows continued throughout 2010. Contrary to developments observed in the region, economic growth has so far not been followed by a recovery in lending. Banks' loan supplies remain restrained for two reasons. On the one hand, banks' risk appetite remains low; on the other hand, reflecting the deterioration in the portfolio and the very high bank levy, capital buffers decreased, curbing lending ability. According to the forecast of the MNB, corporate lending is not expected to

pick up until late 2011 (Figure 15). Without a pickup in lending, the recovery of the economy may remain weak and fragile (MNB, 2011).

Figure 15: Net change in loans outstanding to nonfinancial corporations

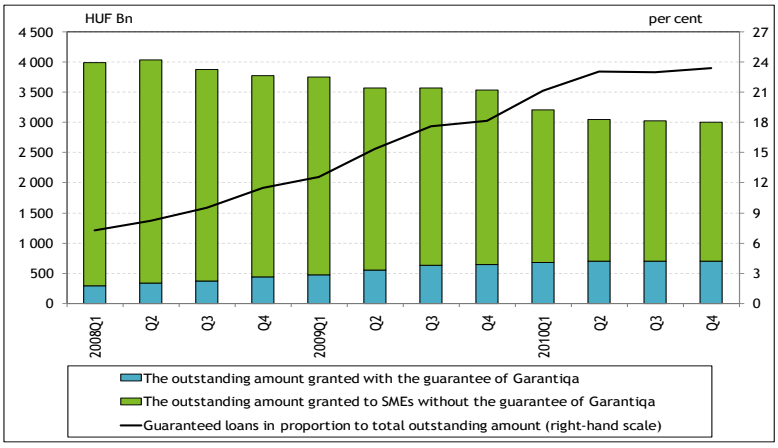


Source: MNB data.

Note: "Banks" includes banks, branches, and cooperative credit institutions.

As seen above, we cannot say that credit expansion in the corporate sector was excessive. Although risks were exacerbated by the currency structure of the loan portfolio, we have not found evidence of a problem similar in magnitude to that encountered in the household segment. Nonetheless, against the backdrop of the drastic downturn in the economy, the quality of the corporate loan portfolio deteriorated substantially. This, in turn, was reflected in the mounting losses on the portfolio, which impairs the lending ability of the banking system even further. Thus, the greatest challenge lies neither in changing the structure of the portfolio nor in controlling credit expansion; first and foremost, efforts must be made to revive lending, and the government should be involved in this process (e.g. interest rate subsidies, guarantee etc.). The difficulty is that the room for fiscal maneuver is fairly limited due to Hungary's high public debt and former high budget deficit levels. Since it is mainly a supply problem (Sóvágó, 2011), the goal is to reduce the risks assumed by banks. A possible way to achieve this goal is the provision of state guarantees. Such programs already exist in Hungary; moreover, more than 20 percent of the loans extended to the SME sector are backed by state guarantee through Garantiqa Zrt (Figure 16). In view of the success of this program, similar options should be explored and aimed at supporting the revival of lending (MNB, 2011).

Figure 16: Loans outstanding to the SME sector backed by the guarantee of Garantiqa Zrt



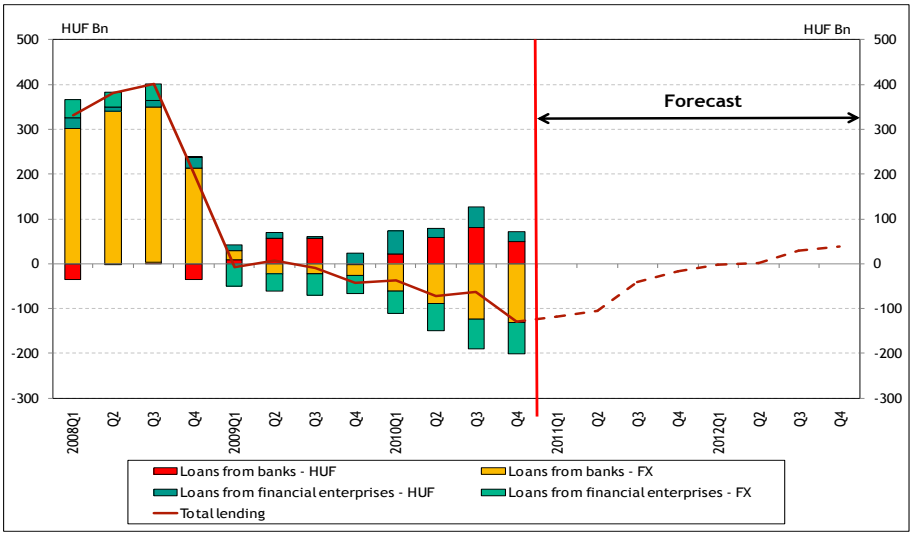
Source: MNB data.

3.2. Household lending: Regulatory measures

Although the household loan portfolio continued to grow in the last quarter of 2008, albeit at a slower pace, net flow turned negative in 2009. The negative effects of the financial crisis became increasingly obvious for households, as well, and was gradually perceived in their income position. In addition, rising installments, due to the weakening of the forint, made households more cautious. Nonetheless, this did not make forint-denominated loans more attractive, given the persistently high levels of forint interest rates. Thus, precautionary considerations became dominant on the supply side as well. Several banks removed CHF-denominated loans from their product range at the beginning of the crisis, while others severely tightened credit conditions. Net lending was, therefore, already negative throughout 2009.

Household lending remained weak in 2010. New disbursement was partly moderated by regulatory changes introduced during the year (see in details later). Moreover, the precautionary considerations of households intensified. In the course of 2010 the Swiss franc strengthened against the forint significantly, leading to a sharp increase in the debt-servicing burdens of households. Meanwhile, the labor market environment remained unfavorable. Consequently, despite their frail income positions, the households had to spend increasing amounts on debt service, which drastically decreased their willingness to borrow. As regards banks, lending was inhibited mainly by the rapidly deteriorating portfolio. Through the deterioration of the capital position, substantial loan losses are also detrimental to household lending. Accordingly, based on the MNB's forecast, lending is not expected to start recovering until the second half of 2012 (Figure 17).

Figure 17: Net change in loans outstanding to households



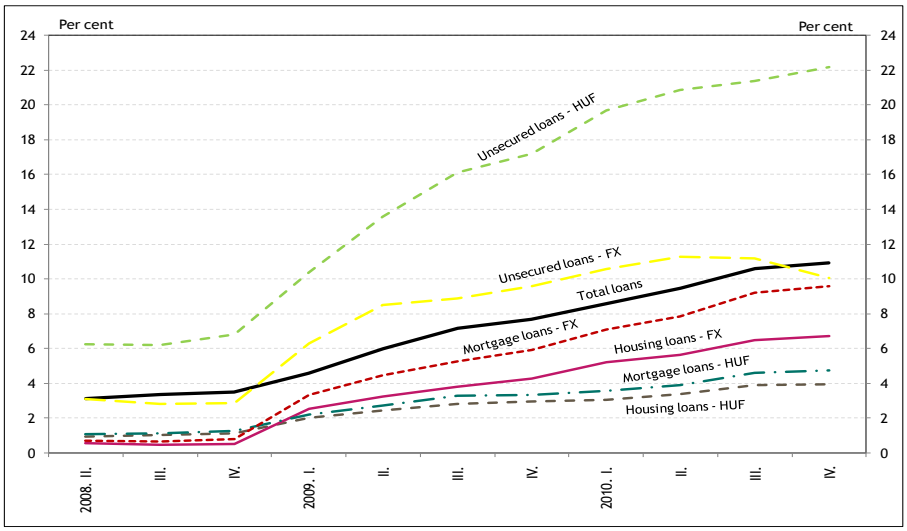
Source: MNB data.

Note: "Banks" includes banks, branches, and cooperative credit institutions.

The delayed turning point in household lending is part of the inevitable adjustment process. The main risk in this regard is not the downturn in lending but the rapid deterioration of the portfolio. As unsecured loans are associated with weaker willingness to repay, primarily it was these loans that went delinquent at the beginning of the crisis. However, in 2009 the quality of mortgage loans – which constitute the bulk of the loan portfolio – also began to deteriorate with increased installment amounts resulting from unfavorable exchange rate and interest rate developments combined with a negative labor market environment. This not only worsens banks' stability and lending ability, it also generates severe social tensions. To tackle the problem, the Government adopted a moratorium on evictions from

the properties serving as collateral for nonperforming loans as early as 2009. After several extensions, the eviction and foreclosure moratorium remained in effect until July 2011. However, this regulation merely addresses the social aspect of the problem, and it further aggravates banks' situation. On the one hand, the law has clearly reduced willingness to repay; on the other hand, it forces banks to keep bad debts on their balance sheets and finance them (Figure 18).

Figure 18: 90+ delinquency ratio for certain retail product types



Source: MNB data.

3.2.1 Regulatory measures

Drawing from the experience of the crisis, several regulatory initiatives have been announced and implemented with an impact on lending to households. In light of the problems presented above, these initiatives had two objectives. One is to ensure the formation of a sounder lending structure as lending recovers. Forint-denominated loans came into the forefront with a simultaneous, drastic cutback on foreign currency loans, while authorities strive to pressure banks to assume less risk even in the case of forint loans. The other main objective is to provide better protection to borrowers. Indeed, banks used to have an option to raise interest rates on loans at will, and as a consequence, changes in the installment amounts were not predictable to customers. On occasion, this mechanism may have contributed to the deterioration of the portfolio.

Below we examine the regulatory initiatives that have been implemented in Hungary since the onset of the crisis. In some cases we also present their short-term impacts.

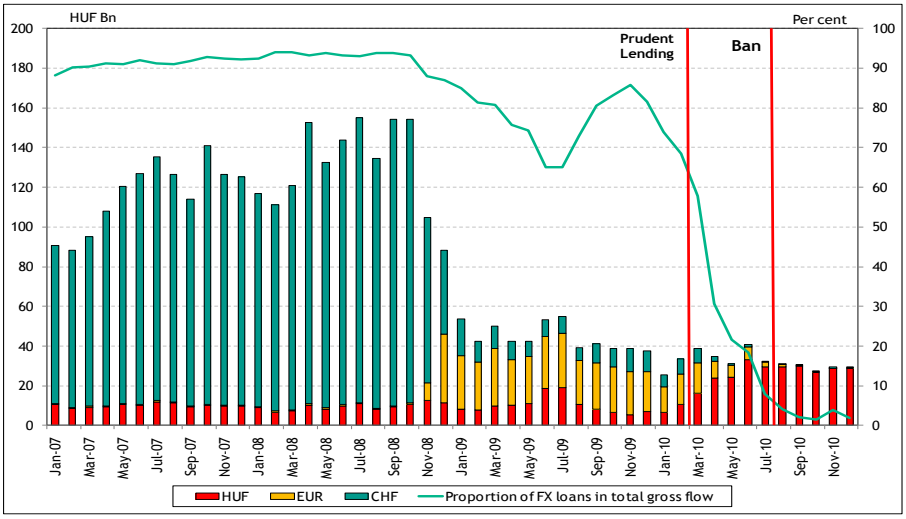
1) **Transparent pricing (step 1)**: Ever since the gradual expansion in household lending, the fact that banks could unilaterally modify the terms of retail loan agreements had been an unresolved problem. After several proposals, the first step was taken in 2009. Banks were required by law to provide a cause-and-effect list in their loan agreements as to what entitles them to raise interest rates, fees, or charges. At the same time, the law entitled debtors to prepay their loans free of charge for a duration of 60 days from the date of an unfavorable, unilateral contract amendment (either by refinancing their loan or by taking out a new loan from a different provider). Market players—who denounced the legislation change and tended to stick to the regulation to the letter while they essentially evaded its spirit—inserted tediously long lists into their terms and conditions, which entitled the institutions, for instance, to raise their interest rates even on the grounds of rising marketing expenses. In addition, the long lists did not specify the extent to which transaction rates were to be modified if the listed

reasons materialized (for example, the percentage point by which interest rates were to be raised in case of a specific increase in marketing expenses). This counteracted the legislative intent pertaining to transparent pricing.

2) **Transparent pricing (step 2)**: In light of the failure of the previous attempt, with the coordination of the HFSA, banks finally worked out a Code of Conduct, effective January 1, 2010, under which they committed themselves to exercise moderation regarding their unilateral pricing range. In essence, this translated into a moderate shortening of the cause-and-effect lists. The Government adopted the Code of Conduct and even passed a legislative amendment to incorporate it into the legislation. According to the amendment, creditors have to define their pricing principles in writing, providing an exhaustive list of all the factors on the basis of which they are entitled to unilaterally modify interest rates, fees, or charges at the expense of the customer. Fees or charges may be raised annually by the rate of inflation at most (even though these fees are typically expressed in percentage), and the Code of Conduct includes a consensual "sample" of the cause-and-effect list defined in the pricing principles legitimizing interest rate raises. Based on this, lenders can pass, at nearly any time, three types of risks on to their customers by unilateral contract modification: changes in the regulatory environment (*changes affecting business activity, that is, changes to legislation, taxes, reserve ratios, and deposit insurance fees*); increased cost of funding; and an increase in customer risk. Since this continues to leave ample room for banks to modify interest rates on loans, the criterion of transparency barely improved.
3) **Activity of brokers**: The activity of brokers also played an important role in the upswing in lending. During the years of the crisis it became clear that the rapid deterioration of the portfolio was partly attributable to the activity of brokers, as they enabled riskier customers to enter the lending process (MNB, 2008). It thus became important to tighten the previously loose regulations related to their activity. One of the objectives of the regulation was to define the various types of lending intermediaries. The classification is based on the entity on whose behalf they act. Further objectives were reducing the intermediation chains, tightening brokers' working criteria (e.g. license), preventing a conflict of interest (e.g. regulation of remuneration).
4) **Prudent lending**: The central element of the regulation is that it defined differentiated LTV limits for retail mortgages, vehicle financing loans, and home leases. In the case of mortgage loans, the LTV limit is 75 percent for forint-denominated loans; 60 percent for euro-denominated loans, and 45 percent for loans denominated in other currencies (for example, CHF). As regards vehicle financing loans and home leases, the regulation is less strict; their limits are 80 percent, 65 percent, and 50 percent, respectively. Another important element of the regulation requires banks to set up creditworthiness limits based on the assessment of the creditworthiness of individual loan applicants in proportion to monthly income. As a result of the regulation, the ratio of foreign currency loans to new mortgage loans fell below 10 percent. Nevertheless, the total gross flow, which had already been extremely low because of the crisis, did not change significantly. The regulation appeared to provide sufficient restrictions in the event of an upsurge in lending (Figure 19).
5) **Ban on foreign currency mortgage lending**: Despite the success of the regulation aimed at facilitating prudent lending, in mid-August 2010 a law came into effect prohibiting registering a mortgage on real estate in the Land Register if it is based on a mortgage loan contract in foreign currency by natural persons. The effect of this act was rather negligible, given that foreign currency mortgage loans had practically disappeared already on the back of the act on prudent lending.

6) **Enhancement of the mortgage bond market**: As the study by the Csajbók et al. (2010) demonstrated, the lack of availability of long-term, fixed-interest-rate loans in domestic currency reduces the possibility of an upsurge in foreign currency lending. This requires long-term forint savings. In addition, the crisis proved that a reason for the vulnerability of the Hungarian economy is the lack of long-term forint savings. With that in mind the central bank took steps to enhance the forint-denominated mortgage bond market. In this context it launched a mortgage bond purchase program with the intention of purchasing mortgage bonds in the primary and secondary markets at a value of HUF 100 billion at most. With these steps the MNB wanted to improve the covered bond market which may have positive effects on the demand of these securities.
7) **A proposal package aimed at reducing banks' abuse of dominant economic position for the protection of distressed customers**: The package adopted at the end of 2010 increased the rights of borrowers in certain aspects while it strived to improve the transparency of pricing; however, it failed to achieve real changes. The points accepted include the following:
   - In respect of housing loans, only interest rates can be modified by banks unilaterally, and strictly for predefined reasons (service fees and other charges cannot be modified[9]). These reasons, however, did not materially curtail banks' leeway.
   - In case of foreign-currency-denominated loans, banks are required to apply either the central bank's or their own mid-rate. (In other words, banks may not use the FX sell rate for calculating the installment amount).
   - As regards loans for house purchases, the law set the upper limit of prepayment fees at 1.5 percent, while it abolished prepayment fees altogether for loans under HUF 1 million, provided that the customer had no prepayment in the previous 12 months.
   - Pursuant to the regulation, once every five years customers may request the extension of maturity of housing loans free of charge.
   - Under the new law, in the case of housing loans, 90 days after termination of the contract on a defaulting loan banks may not charge late payment interest, only their normal transaction interest.

Figure 19: New issuance of household mortgage loans by currency



Source: MNB data.

[9] The former regulation (point 2) still stands for home equity loans.

The measures adopted thus far were conducive to ensuring that once lending recovers it will be healthier both in terms of volume and structure relative to precrisis practices. However, the risk of returning to the irresponsible precrisis foreign currency lending practices could be reduced further. While the prevailing regulations prohibit purely collateral-based lending, they allow a wide margin for the income-based creditworthiness limit. It would be advisable, therefore, to introduce significantly stricter PTI limits. While the LTV limit primarily protects banks, rather than customers, from substantial losses, the PTI limit would mainly protect debtors from excessive risk exposure. The existing regulations have not resolved the problems related to the lack of transparency in pricing. Therefore, the pricing of loan products should be subjected to more stringent regulations, for example, through the mandatory introduction of products with an interest rate fixed for a longer interest period, or products with fixed premium and variable interest rates (MNB, 2011).

3.3. Basel III, as a future challenge

Above, we addressed the regulatory measures adopted heretofore, explicitly designed to tackle country-specific problems. However, in our review of macroprudential measures we cannot ignore the fact that, as a result of a joint, international effort, the Basel Committee (Basel Committee on Banking Supervision, or BCBS) has put forward its recommendation package to be implemented with CRD IV and CRR[10] in member states across the European Union, including Hungary. Although the exact form of European implementation is not known, a few key issues should be highlighted.

The primary objective of the new capital regulation is to ensure that banks have capital at their disposal in sufficient quantity and quality, thereby improving the shock-absorbing capacity of banking systems. According to the Basel recommendations, banks' capital requirements consist of three components: a minimum amount of regulatory capital, a mandatory capital conservation buffer, and a counter-cyclical capital buffer designed to mitigate the pro-cyclical nature of banks' behavior. Therefore, the capital requirements of banks increased significantly; moreover, more stringent capital definition was imposed. However, to achieve the targeted levels, banks have a rather long period of adjustment at their disposal: maximum levels are expected to be achieved by 2019. We do not expect this change to pose significant problems for Hungarian banks. The Hungarian banking system has had fairly high capital adequacy levels even before, mainly constituted by capital components of the highest quality.

However, the introduction of the two liquidity ratios is a more important issue in light of the financing risks described above. The objective of the LCR (Liquidity Coverage Ratio) is to ensure that banks can meet their obligations even during a 30-day severe stress scenario; in other words, they must maintain a liquid asset buffer of sufficient size. As described above, banks' liquid assets diminished before the crisis and, consequently, the banking system initially faced the crisis without an adequate liquidity buffer at its disposal. This demonstrates that the regulation is aimed at containing risks relevant to the Hungarian banking system. The liquidity position of the Hungarian banking system has improved significantly since the beginning of the crisis. (For example, the ratio of liquid assets to balance sheet total increased to 15 per cent from 7 percent.) This notwithstanding, meeting the minimum liquidity coverage ratio might still be difficult for certain financial institutions—partly because of real, existing risks and partly because the regulation attempts to apply uniform standards to very different types of banking systems. A good example of the former is reliance on the swap market, which has not decreased despite the fact that it represented a severe risk during the crisis. The cash outflow resulting from the exchange rate shock reflected in the ratio is a phenomenon also observed in Hungarian

[10] For details see: http://ec.europa.eu/internal_market/bank/regcapital/index_en.htm

practice. This therefore justifies the maintenance of a liquidity buffer. However, the handling of parent bank funds as simple interbank funds and the inordinately strict criteria applied to the use of the preferential weighting of corporate deposits' outflow could create unnecessary difficulties for Hungarian banks.

NSFR (Net Stable Funding Ratio), the second liquidity ratio, aims to reduce maturity mismatches in banks' balance sheets. Therefore, achieving the expected level of the ratio will be made difficult by the recently observed developments in Hungary. Short-term external funds have gained an increasingly important role within external funding. At the same time, the ratio of funds with short residual maturity has gained ground within the balance sheet (MNB, 2011). While the occurrence of this change is not limited to Hungary, it represents a risk.

In short, certain banks may encounter difficulties in trying to meet the liquidity criteria. The adjustment process of Hungarian credit institutions may have serious impacts on the real economy, and the later they begin the adjustment, the greater the impact will be. It is important, therefore, to consider country-specific features in the course of European implementation, and not to force banks to make bigger adjustments than warranted by the risks.

4. Conclusions

The crisis, which began in 2007, had a strong impact on the Hungarian economy. More than two years after the escalation of the crisis, the loan portfolio of the private sector was still on the decline in Hungary, and it appears now that the recovery of lending may not be expected until the end of 2011 in the corporate sector, and even later in the household sector. The current negative developments can be attributed to the rapid external indebtedness preceding the crisis and the growing vulnerability of the country. Despite a significant improvement in its economic position, Hungary is still considered a risky area and is treated by banks with greater caution. Moreover, as the risks accumulated during the precrisis period materialized (and the bank levy was imposed on banks), the profitability, and hence, the lending ability of the banking system deteriorated sharply.

The analysis of the past 10 years or so sheds light on what led the Hungarian economy to its current situation. When the modern Hungarian banking system came into existence, the banking business focused mainly on corporate lending. By the late 1990s, fierce competition developed among banks in this segment. As regards firms, demand for bank financing arose due to the lack of a functioning capital market (e.g. the ratio of securities other than shares is still below 2 percent on the liability side of firms). While the indebtedness of firms was a rapid process, it was consistent with the convergence of the Hungarian economy. The main risk factor was the growing share of foreign currency loans within the portfolio. The substantial foreign currency loan portfolios, particularly FX loans extended to the SME sector, suggest that borrowers did not always have sufficient foreign currency income to serve as a natural hedge.

Lending to households evolved differently relative to the corporate sector. Until the beginning of the 2000s, households were practically not linked to financial intermediaries on the liability side. However, the newly offered, state-subsidized forint-loans proved to be attractive, leading to a sharp surge in the household loan portfolio, particularly in the period 2002-2003. After a drastic cutback of the subsidy in 2003, this loan product became far less attractive from 2004 onward. The response of the banking system was nearly instantaneous, with the offering of a new product. Banks started to provide foreign-currency-based mortgage loans to their customers. The product was an instant success.

From 2005 the indebtedness of the households exceeded the growth rate that would have been justified by the convergence, and the period 2007-2008 was characterized by a credit boom.

Nevertheless, regulatory measures were not taken until the period of the crisis. The lack of action can be attributed to growth sacrifice and the uncertainty surrounding the efficiency of the potential measures. The crisis harshly revealed the magnitude of the accumulated risks. Considerations about household lending, therefore, focus on two central issues. First, after the recovery, what can be done to promote sounder lending practice, both in terms of structure and volume? Second, what can be done to assist distressed debtors? As regards corporate lending, a different question has come to the forefront. What can a government do to boost lending when, at the same time, it is constantly forced to make fiscal adjustments?

The past two years have seen significant changes in the regulatory environment of household lending. In line with the objectives described above, prudential tools have been applied, while transparency and the protection of customers were reinforced. Meanwhile, efforts are being made to facilitate lending to the corporate sector by guarantee schemes. The implementation of the Basel III recommendation package may moderate financing risks; however, there are still uncertainties about the expected effects.

The painful experiences of the crisis demonstrated that an excessive upsurge in lending inevitably leads to some degree of weakening in growth momentum. It is a matter of decision, however, whether this is set in motion in a coordinated manner, by regulatory measures, or triggered by a crisis.

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Appendix I.: Main measures applied to maintain the stability of the banking system

MNB reactions:

Increased the liquidity surplus to support banks' HUF liquidity needs

- Purchasing government bonds (in the last quarter of 2008),
- New lending facilities (2-week and 6-month loan from October 2008)
- Broadening collateral base from November 2008 (municipal bonds, covered bonds, minimum rating: BBB-)
- Reducing reserve requirement (from 5% to 2% in December 2008), modifiable required reserve ratio from November 2010
- Increasing FX-reserves (FX loans from EU, IMF)

FX-swap facilities supported with swap line

- Supporting FX liquidity need of the banks and enhancing transmission mechanism through normalised implied HUF rates in FX- swap market
    - Overnight EUR/HUF FX-swap tender (two simultaneous possibility from October 2008, the two-way overnight EUR/HUF FX-swap tender was suspended in May 2009)
    - 1 week CHF/EUR FX-swap (from February 2009 till January 2010)
    - 3-month and 6-month EUR/HUF FX-swap (from March 2009, 6-month facility was suspended in July 2010)

Government steps:

- Direct state loan from the government to banks not having strategic foreign owner from IMF loan (OTP, MFB, FHB)
- Setting up a capital injection and guarantee scheme from IMF loan (pre-emptive actions)

International support:

- International Monetary Fund (IMF), European Commission (EC), World Bank program (from November 2008): under the agreement Hungary got access to a standby credit
- facility of up to EUR 20 billion
- Vienna Initiative (from March 2009): a dialogue between International Financial Institutions (IMF, WB, EBRD, EIB, IFC) and commercial banks active in the region so as to ensure coordination on cross-border issues and continued lending to the region. Parent banks accepted not to decrease their country exposure.

Different approaches to the causes and consequences of the financial crisis

Katalin Botos

Unquestionably the behavior of the financial institutes caused the US financial crisis which became a worldwide phenomenon. It is too easy but not enough to blame greedy banker (though not superfluous). The subprime crisis was the consequence of the profit-seeking activity of the different financial institutions (which belongs to the logic of the market). What happened was not against the market but according to the logic of the market. There were some mistakes in functioning of the market institution which must be corrected. These distortions were caused mainly by the intervention of the states. Competitiveness in the sector was confused by the belief that some big institutions will be saved by the state because they are too big to fail. (And at the end they were not disappointed, that was what happened.)

According to Raghuram Rajan the fault lines causing the crises lay in the income situation of the society and in the government interventions. According to him too much state in business should be reduced. Financial institutions should take the responsibility of their activity, state should not rescue them, and probably only the very small institutions should have even deposit insurance. The customers of the financial institutions should learn to make differences between correct and too much risk-taking institutions. Another famous American expert, Richard Portes doesn't share his views about too much state. He says the deregulation process which started in the early seventies has the main responsibility. There is much more state regulation necessary within and between states, maybe not in the midst of the crises but soon afterwards. Both scientists agree that the remuneration system of the financial sector employees should be changed and bound to the long term effect of their activity.

Keywords: financial crisis, state intervention, banking regulation, fault lines, social safety network

1. Introduction

The question is where we start analysing the roots and consequences of the contemporary financial and economic crisis. Starting from the problem that the crisis was caused by the *financial innovations*, the question arises: why did the state *not intervene earlier*? Why was the state regulation in the US so weak? We may blame the business, the greed of the bankers and the weakness of the state allowing and promoting worldwide deregulation and liberalization to go as far as it has gone. This has led to the housing bubble which burst in 2008 (Posner, 2009).

Starting a bit *earlier*, we can state that *the state* was not at all innocent in the economic disaster that happened in 2007-2008. First, it let deregulation go so far as it has gone. Second, it has misused its power for political purposes. The ruling governments wanted to have satisfied voters. But most of the population in the USA was not so happy because of the growing differences in earnings amongst the layers of the society. So the governments intervened into the economic process offering state sponsored and guaranteed possibilities to get cheap credits for housing ownership- and even more. They could not force the employers to pay more for their employees, so the state offered cheap credit for them. „Let them eat credit" (Rajan, 2010, p. 21).

We may ask what was first: the hen or the egg? We get different answers depending on where we have started from. State or business is responsible for the catastrophe? Naturally, the different starting point leads us to somewhat different conclusions. Any responsible person would say that the form of liberalization and deregulation the world has followed in recent decades has to be changed in a certain sense. Here the two quoted authors agree, too. But they have put the stresses differently on either the state or the business actors. But let us see the details!

2. Are bankers stupid?

Many of the experts say that there were signals enough showing that the economy is running into a housing bubble. A lot of articles were written on the topic. The journal *The Economist* had written: "The first law of bubbles is that they inflate for a lot longer than anybody expects. The second law is that they eventually burst..." (July 2, 2004).

How was it possible then for banks to offer such a big amount of risky loans for their clients? Either the bankers are not honest or they are not clever? But neither of this qualification can be proven. Maybe bankers are not charitable persons and are even led by greed, but are not consequently dishonest. „...bankers are not the horned, greedy villains the public now seems them to be. In the classes I have taught over the years the future bankers were as eager, friendly and ready to share as other students in the class.(…) I have no doubt they continue to be decent, caring human beings" (Rajan 2010, p. 126). They play a game according to the rules. Their IQ is much higher than that of the average person of the street, even higher than that of some other economists or professors (Posner, 2009). They are not stupid. "Had the mistakes that brought down the banking industry been *readily* avoidable, they would have been avoided" (Posner, 2009 p. 77).

Why did the banks then accumulate such big amounts of bad loans, "poisoned" securities? Bankers must have known as much as journalists about their profession. They had to know that there was a lot of risk in their capital structures. They even have known that credit agencies have conflict of interest in qualifying the securities- they were paid by the issuers themselves. Banks knew that in order to be profitable, they had to borrow short term, and lend long term. Lending in housing business they had to calculate whether the house-prices will once drop and the bubble burst. But they thought it had a very low probability – let's say 1% or so – to occur in the near future. So, based on well-made calculation, they lent further on in the housing business. Naturally a cascade of bank- bankruptcies would ruin the economy, but none of the banks felt it had to be too cautious, not accepting 1% risk of bankruptcy. Risks and profits are connected. Those who won't take some risk are lagging behind in the competition. It is also understandable that banks did not want on their portfolio the long-term credits. If it was possible, they wanted to channel this to such institutions or market-players which were willing to accept a good investment possibility though connected with some risk. In that case banks can further on the crediting of the housing industry and earn money by it. Securitization offered for them such a possibility.

The innovation of mortgage backed securities seemed absolutely logical according to the bankers' way of thinking. Let us have a short look on the waves of innovations, beginning 30 years ago (Botos, 1987)! (Let me remark that as I know I was the first expert who wrote in the special literature in Hungary about the financial innovations, based on the Report of the BIS in 1986.)

3. Innovations in banking business

After the Great Depression the strict regulation in banking did not allow banks to offer high interest rate for the deposits in their resource-side of their balances in exchange of the Federal Deposit Insurance Company (FDIC) guaranteeing those deposits. Deposits in banks were that time safe but brought very low income. Banks were regulated to avoid the expenditure in case of a bankruptcy for the FDIC. They had to have capital of their own to cover the possible risk of such an event. They had to have a portion of their deposits as non-interest reserves at the FED, which, too, made them safer, but less profitable.

The wave of deregulation in the seventies changed the situation. Many other financial institutions started to collect money and invest it in the economy, so they were competing with banks for the savings of the population in the USA. These institutions were not insured, but offered much higher return for those who put their money in these institutions, compared with (commercial) banks. Banks started to lose their resources, so they were lobbying for easing up the strict deposit interest rate ceiling. It has lead to a higher credit interest-rate, naturally. Banks introduced the so called "sweeping accounts" (Botos, 1987). They were moving the money on their accounts into investment funds (paying interest) until it became necessary to pay their bills. Then they called them back. And money market funds arose to provide people with checkable accounts, just like banks (but uninsured ...) actually the US financial system doubled: one part was insured, the other not. "The deregulatory strategy of allowing nonbank financial intermediaries to provide services virtually indistinguishable from those of banks, such as the interest – bearing checkable accounts offered by money-market funds, led inexorably to a complementary deregulatory strategy of freeing banks from the restrictions that handicapped them in competing with unregulated (or very lightly regulated) financial intermediaries, nonbank banks, in effect" (Posner, 2009, p. 23).

When regulatory restrictions were lifted for banks as well, they started to go in more risky lending. They became willing to offer „subprime" mortgage loans which actually were of high risk of defaulting. Rajan and others, too, Galbraith for instance (Galbraith, 2008), draw the attention to the fact that banks *knew* what they were doing. The names of certain securities are showing that: NINJA loans, toxic wastes, and so on. The lenders were willing to give the borrowers 100 % credit for their house purchase price. Interest rates were adjustable, if market rates were becoming higher. In 2006 more than 40% of housing financing was such subprime credit. Financial institutions have eased up their credit-standards – for instance the New Century Financial Company that Robert M. Hart has written about: "They would have sold a loan to a dog" (Rajan, 2010 p. 127). Those, who were offering such type of credits, were like partners in a real estate business: they easily could find themselves as owner of a lot of houses, which they have to sell to get again liquid money. This was in a time when the prices of houses are going down... Maybe prices never would go down? That's unrealistic.

Why didn't bankers believe that? Why did they think that house-prices will go upwards forever? It is true; one can only say that it *was* a bubble when it burst. But even then: Didn't bankers feel the accumulating risks?

Maybe the answer is: *They really did not*. And that is connected with the nature of the subprime risk.

4. The nature of the subprime risks

Both authors, Rajan (2010) and Posner (2009) explain quite clear the nature of the subprime risk which is a so called „*tail risk*". These risks occur in the tail of the probability distribution – that is very rarely. System wide adverse events would be necessary to trigger them. System wide scarcity of available funds for financing, nationwide defaults of mortgages... But, if it is happening, it is extremely costly for the nation, so it must not be any time neglected.

We know how securitization happened: banks were packing their mortgages together and sold it in exchange of securities backed by those mortgages. Or they themselves created such securities which they were able to sell to third parties. Securities were dependent on mortgage revenues. Each security was sliced into different risk-return combinations. The buyers could pick up what they want: more risk, higher return, less risk, lower return... The top tier would have the first claim on the income generated by the pool of mortgages. It had the highest credit rating and paid the lowest rate The bottom tier would have the last claim on the income, and paid the highest interest rate. Posner has shown us a simplified example to understand the deal: "Suppose that the first mortgage is 1 million dollars, the second mortgage 500 000 dollars and the owners' equity is 500 000 dollars, so that the total value of the house is 2 million dollars. And suppose, the owner defaults and the house will fetch only 1 250 000 in a foreclosure sale. The second mortgage will foreclose and the house will be sold at the foreclosure sale for 1 250 000 dollars. The owner will lose his entire equity, the second mortgagee will lose half of his investment but the first mortgage will lose nothing since the price at the foreclosure exceeded the value of his investment (...) The mortgage backed securities are nothing like shares of stock, functionally they are bonds secured by (and in fact constituting) fractional shares of mortgages of varying degrees of risk" (Posner, 2009, p. 51).

The banks and pension funds have bought the top tier in each mortgage backed security. These securities have got AAA qualification from the rating agencies. The nonbank financial intermediaries tended to buy lower tiers.

In addition to the good rating, many of the banks purchased credit default swaps – CDS, another important financial innovation - for being doubly sure - to be covered against the bankruptcies of the mortgagors. Insurance agencies started from the same idea we have seen earlier. *It is very unlikely*, a tail risk, that the issuers of the top tier securities will be losing even in case of bankruptcies of the borrowers, so those who bought these securities only „for the sake of" appearances (and for some regulatory advantages) bought a fairly cheap insurance against the very unlikely loss. CDS reduced the necessary amount of collateral a lender needed in order to protect themselves from the consequences of the borrower's default. That is another argument for buying a CDS. Swaps were thought to reduce the lender's risk and so allowed greater leverage and greater returns for the institutions. They were ready and happy to pay the low fee.

Originally the credit default swaps were invented for insurance *bond defaults*. Such defaults had a *long history*, so the insurance institutions had an idea what premium could be computed with reasonable confidence. But *mortgage backed securities did not have a long history* so premiums were calculated fairly low. But, small fish are good fish – for the insurance companies it was a profitable activity, which resulted in a good income.

What makes the situation more complicated is that the *swaps themselves became securitized*. This has led to the globalization of the problem which could be a deficiency only for the American economy. In

that way institutions all over the world became insurers of American mortgage backed securities (Posner, 2009).

When it turned out that the whole system collapsed, America's greatest insurance company, AIG, had not enough reserves to serve its obligations. It needed massive state interventions - money of taxpayers - to save the big institution. Even banks were amongst the issuers of CDS-s. That way they also became the insurers often of other banks. This has led to a domino-effect.

5. Interests in banking business

Undoubtedly, in financial decision making the role of the managers is very important. Therefore it is worth studying their incentives in fulfilling their jobs. Financial intermediaries have to attract more investors to their institutions. "...Investors will reward a manager handsomely only if the manager consistently generates excess returns, that is, returns exceeding those of the risk-appropriate benchmark. In the jargon, such excess returns are known as 'alpha'." "(A manager) has to give the appearances of superior performance. The most direct way is fudge returns..." "What then is a financial manager to do if she is an ordinary mortal – neither an extraordinary investor nor a great financial entrepreneur – and has no bright ideas on new securities or schemes to sell? The answer for many is to take on tail risk" (Rajan, 2010, p. 138). And that way managers look clever, what clever, a genius!

The quotation above explains why it is so common to take tail risk in the sector. The incentive of the managers leads directly to that conclusion. Though the top-management is often an owner in the firm itself, so the consequences for him/her are not having a one-way effect. He may even lose when something wrong happens. Therefore he should be even more careful with his decisions. How could they be so careless?

Because tail risk occurs so rarely, it can be hidden for a long time. It may happen that the manager *may not even be aware* that he/she *is taking it*! Anyhow, tail risk-taking was popular. "In other words: it is the very willingness of the modern financial market to offer powerful rewards for the rare producer of alpha that so generates strong incentives to deceive investors (....) What is particularly pernicious about tail risk is that when taken in large doses, it generates an incentive to take yet more of it A seemingly irrational frenzy may be a product of all-too-rational calculations by financial firms" (Rajan, 2010, p. 139).

Naturally, not all decisions are made by top management. Therefore the incentive system is important within the firm. First we have to mention that the top management has a push not only from the shareholders but from the employees as well. The traders' income is connected with the successful deals they make. Naturally, they are interested in as many a deal as they can do - the consequences are not their problem. There is the traders department, and there is the risk management group or center in the firm's internal structure. But the risk management department is not a profit center. Actually, there are conflicting interests within the institution, and the "financial firm will tend to give more weight to the views of successful traders than to those of the risk managers" (Posner, 2009, p. 80).

As we see, both experts – Rajan (2010) and Posner (2009) – think that the back office risk managers are lagging behind the traders division in importance within the firm. Rajan even states that in remuneration, too. Much less paid than traders. And that always has its contra-selective effect that concerns the quality of the employed persons, which lessens their convincing power towards the managers, too. Though, we must acknowledge that the quick evolution of the financial sector has

drawn the best talented pupils from the high schools, MA, PHD students as labor force. After the deregulation of the financial sector starting in the 80s the salaries of bank employees started to climb up very quickly. The earnings of employees of banks were much higher than MA or PHD students in the field of, let's say, engineering. Contemporary financing needs much more mathematical knowledge than before. Sometimes even it is thought -not without any basis- that banking assistants are more clever that their chiefs, the top managers. No wonder, they earn well. But, first of all, as traders. One of the risk managers on a conference meeting in 2007 told Rajan that they didn't dare to stress their caveats to the managers because of their existential fears: "You must understand, those who were worried were fired long ago and are not in this room" (Rajan, 2010, p. 141). The responsibility therefore is on the top management, clearly.

One may think that the *owners* and their representative, *the board* should somehow better combine the two aspects: risk and profitability. Why did they not pay enough attention to the riskiness of the subprime business? The board itself is partly combined from independent persons so they could control even the managers. *If they really could*. Rajan (2010) quotes the fact that some of the collapsed Lehman- bank's board members – according to an ex-post investigation – were not even experts of the financial fields, had no financial education or practice. This happens often: the so-called extern members of the boards are not at all able to follow what is happening within the firm. Partly because they do not have the skill to do so, partly because the meetings are rare and very formal. (Let me make a comment based on my own experiences on the collapsed Hungarian bank in the 90s, where the investigation from the side of the State Audit Office I had to lead: The Postabank board, too, had its meetings sometimes only based on e-mail letters, there was no real discussion, they voted without really examining the concrete situation. The board members, sometimes even university professors had no banking practice and skill at all. They accepted the membership for the nice remuneration as an honorary job, without much intervention into the current business.)

And, let us see, that s*hareholders* are also eager to get as much profit from the firm as it is possible. It stems from the fact that financial intermediaries are limited societies, so the gains and losses are not of the same weight. In a limited company you bear risk according to your share in the company, but the limit of gains is the high blue sky! So this imbalance makes the owners accept risk if it looks very profitable...

At last we have to ask whether the banks' creditors did not bother because of the growing risk taking. Why didn't they ask a higher interest rate which would reflect the riskiness of the business and may be it could calm the profit-greed of the bank or financial institution? The answer is: because they were sure that *the state will rescue them*.

6. The role of the state

"It is hard to argue that debt holders were ignorant of the risks especially when equity options markets seemed to be signaling possible trouble. The obvious explanation for the continued exposure to risk is that debt holders did not think they would need to bear losses because the government would step in" (Rajan, 2010, p. 148).

The state intervened in different forms into the business life. First of all there is the deposit insurance system. The deposit insurance system was functioning since the New Deal. This has made depositors have no fear from losing their money and therefore ask higher rates for their deposits. It is true, that

banks did not think about bankruptcy but they were not warned of that by their lenders, demanding higher interest rates, either.

But the government had done much more in the business life to change conditions for the actors. After the Great Depression there was equalization in the incomes of the different layers of the society. In the last 20 years differences between incomes of the layers of the society have grown. Growth of wages was left behind the growth of profits, and the top-level incomes of the employees, too, have risen much more than the lower wage levels. The average living standard of the citizens did not rise, remained fairly low. The government being incapable of raising the wages which were formulated on the market, tried to raise the consumption of the citizens by offering them cheap credit. If they may consume, they don't notice that the real wages did not rise... "Let them eat credit!" (Rajan, 2010, p. 21.) Here the political motivation of the state has met the business motivation of the financial sector. Naturally, there is a problem, when the continuance of the credit-raising should somehow be broken. Then a recession may arrive. (And that is what happened in 2008.)

Offering cheap credit was helped by the monetary policy, by the low rates. The special state-sponsored enterprises like the Fannie Mae, Freddie Mac, by institutions like the Federal Housing Administration helped a lot, too... Housing credit was promoted also by the Community Reinvestment Act, and by different tax-measures, like by allowing deductibility of the interest rates from taxes, and others.

Let us have a few words on the so called GSE-s (government sponsored enterprises)! Actually Fannie Mae and Freddie Mac are *not state enterprises*. (Ginnie Mae still is.) They had been, but they were long ago privatized. (It is another question that after - and because of - the crisis they were put again under so called *conservatorship*, which is something like nationalization. But Americans don't like that expression.)

The US government put these institutions during the years after 2000 under pressure to guarantee that the mortgage backed securities would not lose their value. It is possible only if they are buying them on the market even if market players do not want to do the same. That was the cause why the American Enterprise Institute's man, Peter Wallison pointed out the following: "As of the end of 2008 the Federal Housing Administration held 4.5 million subprime and Alt-A loans. Ten million were on the books of Fannie Mae and Freddie Mac when they were taken over, and 2.7 million are currently held by banks that purchased them under the requirements of the Community Reinvestment Act (CRA). These government-mandated loans amount to almost two–thirds of all junk mortgages in the system and their delinquency rates are nine to fifteen times greater than equivalent rates on prime mortgages" (Rajan, 2010 p. 131). The market of the MBS-s (mortgage backed securities) was nearly as big as the market of the state securities. Naturally, the state had to intervene when this market was in trouble... Such a big portion of the securities market the state cannot leave to its fate to collapse. On the cost of the taxpayers these institutions were nationalized. They have got a huge amount of money to cover their capital losses. But, if you look at their homepages, it speaks about their activity and offers their services as *if nothing has happened*, although they have been taken under conservatorship to calm down the nervous men of the street...

The huge amounts of rescue-packages which saved the American economy from the repetition of the Great Depression naturally are integral part of the national debt, and as we have seen in the latest month, have led to the American state securities being ranked down by the rating institutions.

If we are looking for the causes of the crisis, we have to mention the activity of the FED. The support for the housing business was important not only because the citizens as consumers were more satisfied, but because the housing industry offers a lot of jobs and raises the GDP. One of the greatest

problems of the last 20 years was that steady growth hadn't led to higher employment. Unemployment is the most sensible indicator of the economy, which makes politicians nervous. The FED was under pressure from the government to keep interest rates low to enhance growth and so employment. A surprising fact was that in the years after 2000 the technical progress and investments achieved the goal in economic growth *but didn't bring a growth in employment*. The new phenomenon, *growth without employment* didn't find a proper handling from the state. Therefore state pressure on the FED did not achieve its real result but it resulted in very cheap credit. The unwanted consequence of that was the housing bubble. American citizens were not fully innocent in this phenomenon. Rajan talks about: "...homeowners, who spend to excess while *treating homes they should never have owned as virtual ATMs*" (italics mine) (Rajan, 2010.p. 31), that is, people raised new credits on their houses because the mortgage value of it had gone up and they used the difference for further consumption. When prices of the houses started to go back those credits became uncovered and in case of default the financing institution could not get back the value of the credit by foreclosure. And this point of time time arrived when the FED started to raise interest rate (though too late and partly in vain). The flow of *money from abroad* created abundant liquidity even then. As confidence in the subprime securities teetered, the short term resources from abroad disappeared. That created a liquidity crisis (which turned out to be solvency crises) in the banking sector...

7. Different conclusions

Both Posner (2009) and Rajan (2010) say that it looks as the state intervention came at the wrong time and in the wrong direction.

Rajan *emphasizes* that the problem is not the functioning of the banking sector. It is natural that banks want to make money because the sole criterion of their usefulness is money. Having huge income shows that the society demands its services. According to his opinion maybe there are more profound *fault lines* in the society and economy that caused the crises. The fault lines are: the changed income distribution in the society, the unequal access to means of adjustments and the worldwide imbalances between states. It has changed in recent times how society relates to the rich. In earlier decades the shoeshine boy could be a millionaire but most of the rich were the local self-made entrepreneurs. They came from the same school as everybody else. Today they are the distant overpaid CEOs, the greedy bankers. "The rich are no longer *us*, they are them" (Rajan, 2010 p. 184). There is an unnecessary income inequality in the society which is for most of the population unacceptable. To reduce this, the best way is to improve access to better *human capital*. Why is Rajan stressing the importance of human capital? This economy today is more and more a knowledge – based economy. In a system such as the one in the USA, where learning is quite a big investment, few can afford it out of those coming from the lower layers of the society. And then the fate of poorer layers is sealed. They never will command the necessary skills and knowledge to apply for jobs where they could earn more. They will be unwanted members of the society, their sole function is *to consume*... (That was promoted by the cheap credit offered by the government intervention. But, being indebted, they are on a path they never can escape from.) Inequality feeds itself, if nothing is done by the state to improve access to better schooling of the poorer members of the society. Unequal access, and the resulting inequality destroy consensus amongst different layers of the society which is one of the important character-lines of the developed societies. Improving access should start early; in childhood. The "No child left behind" movement in America is one step in that direction but not enough. Interestingly, Rajan stresses that not only the quality of teaching is important but the whole family life, even the meals that a little kid gets, as well as the atmosphere within the family: so Rajang is supporting the idea that welfare

payments should be conditioned on parents meeting some milestones in health and education (Rajan, 2010, p. 186). (We might recall the attacks in the Hungarian political life against the law which connected childcare payments to sending children to the school. And all this in the name of „liberal" and „social" ideas!) Rajan would give vouchers to the students to choose the best fitting school for themselves, that way guaranteeing the competition among schools for offering better services. It is the best solution if private efforts are combined by state help - but never offering subsidies without any personal efforts. It is also important to develop the health and pension system nationwide. It is a shame for a democratic country to let suffer a big part of the nation, all those who have no health insurance, says Rajan (2010). The same is stressed by Krugman (2010) who has analyzed the political system in the US and assigns as one of the most urgent task for politicians to build up a *nationwide health insurance system*. Rajan (2010) draws our attention to the fact that the „growth without employment" creates special problems in the States, because health care and pension are connected with employment. If the employees lose their job, they lose their health care and pension as well. (By this suggestion the American economist invents the *social market economy*, invented in the old continent a hundred years ago... Better late than never.) Naturally, Rajan (2010) thinks that *changes in the field of regulation* are necessary, too, concerning the financial intermediary system. But his idea is that the most important thing is that the state should intervene less into the economic life. Let the market economy really be what it is, a playing field, where success and failure are also possible. He thinks that banks should not have even deposit insurance - maybe only the small ones. The other big banks must be much more cautious taking risk than they were before, and their clients should evaluate their reliability. He suggests that too big institutions should be cut in parts. It is a problem if an institution is too big to fail. He throws the attention to the fact that sometimes a smaller firm can be dangerous, too, if it is systematically too important. So it is better to exclude the possibility of being *too systemic to fail*.

It is also important to correct worldwide imbalances. Export-led strategies of developing countries (and of some European economies, too) need over-consumption in other countries "The global trade surpluses produced by the exporters search out countries with weak policies that are disposed to spend but also have the ability to borrow to finance the spending- at least for a while" (Rajan, 2010 p. 67). They found it in the USA, and it has led to overconsumption in that country. The housing bubble is a sign of this, too.

Posner condemns the lack of regulation in the last two decades. He says that the cause of the crisis was not that there was too much of the state, but that there was too little of it - in the field of regulation. According to him the professional blindness is excusable because the rival theories of depression were so different, even contradictory. Even the failure of officials to heed the warning signs is understandable – "Cassandras rarely receive a fair hearing and for reasons that only in hindsight can be seen to be mistaken" – as he says (Posner, 2009, p.328). What is inexcusable is the failure of the FED and the government to have pre-prepared contingency plans for the possibility for a depression. When the crisis hit in they were fully unprepared and responded with improvisations: flooding the economy with money, massive deficit spending bail-out actions, and regulatory changes. All this having been thought out in advance. It creates more problems for the future. He says: "the expensive treatment cures a deadly illness but leaves the patient debilitated"(Posner, 2009. p.330) We may even say, looking at the European problems following the American-originated crisis, that the illness really infected the whole world...

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Changing central bank transparency in Central and Eastern Europe during the financial crisis*

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Klára Pintér

There is ample empirical evidence in the literature for the positive effect of central bank transparency on the economy. The main channel is that transparency reduces the uncertainty regarding future monetary policy and thereby it helps agents to make better investment, and saving decisions. In this paper, we document how the degree of transparency of central banks in Central and Eastern Europe has changed during periods of financial stress, and we argue that during the recent financial crisis central banks became less transparent. We investigate also how these changes affected the uncertainty in these economies, measured by the degree of disagreement across professional forecasters over the future short-term and long-term interest rates and also by their forecast accuracy.

Keywords: central banking, transparency, financial crises, survey expectations, forecasting.

1. Introduction

Recently, the literature has provided some empirical evidence for the favorable effect of central bank transparency on the economic outcomes. The main channel is that transparency reduces the uncertainty regarding future monetary policy and thereby it helps agents to make better investment, savings and other decisions. By testing the first step of the channel, Swanson (2004), Ehrmann et al. (2010), and Csávás et al. (2012) find that the interest rate is forecasted with a higher level of precision by professional analysts when the central bank is more transparent. By testing the effect of transparency directly on macro variables, Chortareas et al. (2002) find that greater transparency about forward looking analysis of central banks is associated with lower inflation rate, and unchanged output volatility.

Preceding the recent financial crisis, central banks have become more and more transparent all over the world. They implemented considerable changes in monetary policy communication, and many aspects of the central banks' operational and monetary policy targets and modeling practice became unveiled. The increasing degree of central bank transparency has been clarified by Eijffinger and Geraats (2006) inter alia, who published a transparency index for nine industrial countries covering the period between 1998 and 2002. Dincer and Eichengreen (2007) expanded the number of countries and years covered by Eijffinger and Geraats (2006). By using an even more comprehensive sample of 100 countries for the period between 1998 and 2005, they confirmed that central bank transparency had an increasing tendency even until the mid 2000's.

In this paper, we examine whether financial stress in 2007, 2008 and 2009 has inclined central banks to become even more transparent. This question has already been investigated in the empirical

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literature by using the transparency index of Eijffinger and Geraats (2006). Siklos (2010) has updated the index for the period between 2006 and 2009. By studying the updated index, he found the following. First, transparency continued to improve gradually on average even after 2005 although at a slower rate than before. Second, there are some obvious differences across country groups. The transparency index of developed countries stopped increasing in 2006. From then on, it remained unchanged. In contrast, transparency has risen steadily in the rest of the world with the most impressive developments taking place among the countries in Central and Eastern Europe (CEE). These findings are apparent from Table 1.

Table 1: The transparency index across country groups.

	Level			
	Developed	Developing	Emerging	CEE - 4
1998	7.27	2.28	3.81	4.63
1999	7.97	2.37	4.08	5.38
2000	8.20	2.45	4.82	6.00
2001	8.60	2.85	5.19	6.38
2002	8.97	3.15	5.98	7.63
2003	9.17	3.28	6.48	8.00
2004	9.40	3.61	6.71	8.38
2005	9.47	3.75	6.89	9.25
2006	9.63	3.80	7.00	9.38
2007	9.63	3.86	7.11	9.75
2008	9.63	3.88	7.16	9.88
2009	9.63	3.88	7.32	11.00

Source of data: Siklos (2010).

Notes: The data has been revised and modified by the authors of this paper. See Section 4.2.2 about the modifications.

The categorization of countries into the group of developed, developing, and emerging is according to the IMF classification, published in the World Economic Outlook.

CEE 4 countries are the Czech Republic, Hungary, Poland, and Slovakia.

The potential explanations for these tendencies are as follows. First, the transparency index is constructed in a way that it has a maximum.[1] Therefore, it cannot increase continuously forever. By the mid 2000's, transparency might have already reached its limit in the developed countries and got close to it in many other countries. Second, the transparency index might have some limitations at measuring the exact degree of transparency and this limitation can be more apparent during periods of financial stress. (See Section 3 for the detailed analysis). Third, the global financial crisis of 2007-2009 enforced changes in the monetary policies that might make it impossible for central banks to enhance transparency. Siklos (2010) has left the judgment of these explanations to future research.

We contribute to the literature by analyzing the links between central bank transparency and financial system stability in many different ways. First, we document that the standard measure of transparency has hardly changed in some CEE countries during periods of financial stress.[2] Second, we review the

[1] See Section 4.2.2 about the details on the transparency index.

[2] The analyzed countries are the CEE-4 countries. Although their transparency indices have increased even in the recent years as it is reported in the last column of Table 1, it can be attributed mostly to one outlier. This is

dimensions of transparency that might have changed during the recent financial crisis but cannot be measured by the standard transparency index. Third, we investigate how the unconventional monetary policy has influenced central bank transparency in the recent years. Finally, we estimate the link between transparency and accuracy of survey forecasts by applying a methodology similar to that of Ehrmann et al. (2010), and Csavas et al. (2010). By using this link, we aim to provide indirect empirical evidence for the hypothesized reduction of transparency during periods of financial stress.

2. Stylized facts on financial stress and transparency

In this Section, we examine how transparency evolved in four CEE countries. The analyzed countries are the Czech Republic, Hungary, Poland, and Slovakia. This group of countries provides us with a special opportunity to explore the link between transparency and financial stress for two reasons. First, these countries have been hit not only by the global financial crisis, but they had experienced episodes of severe financial stress even before 2005. Second, central bank transparency has not reached its limit by the early 2000's in these countries.

In this analysis, we use the financial stress index (FSI) that has been constructed by Balakrishnan et al. (2009). This index is similar to the index of Cardarelli et al. (2009) as both consists of the sub-indices measuring the stress in the banking sector, security markets, and the foreign exchange market. The main difference between these two indices is that while the index of Cardarelli et al. (2009) has been developed for the advanced economies, the one of Balakrishnan et al. (2009) suits the emerging countries better.[3]

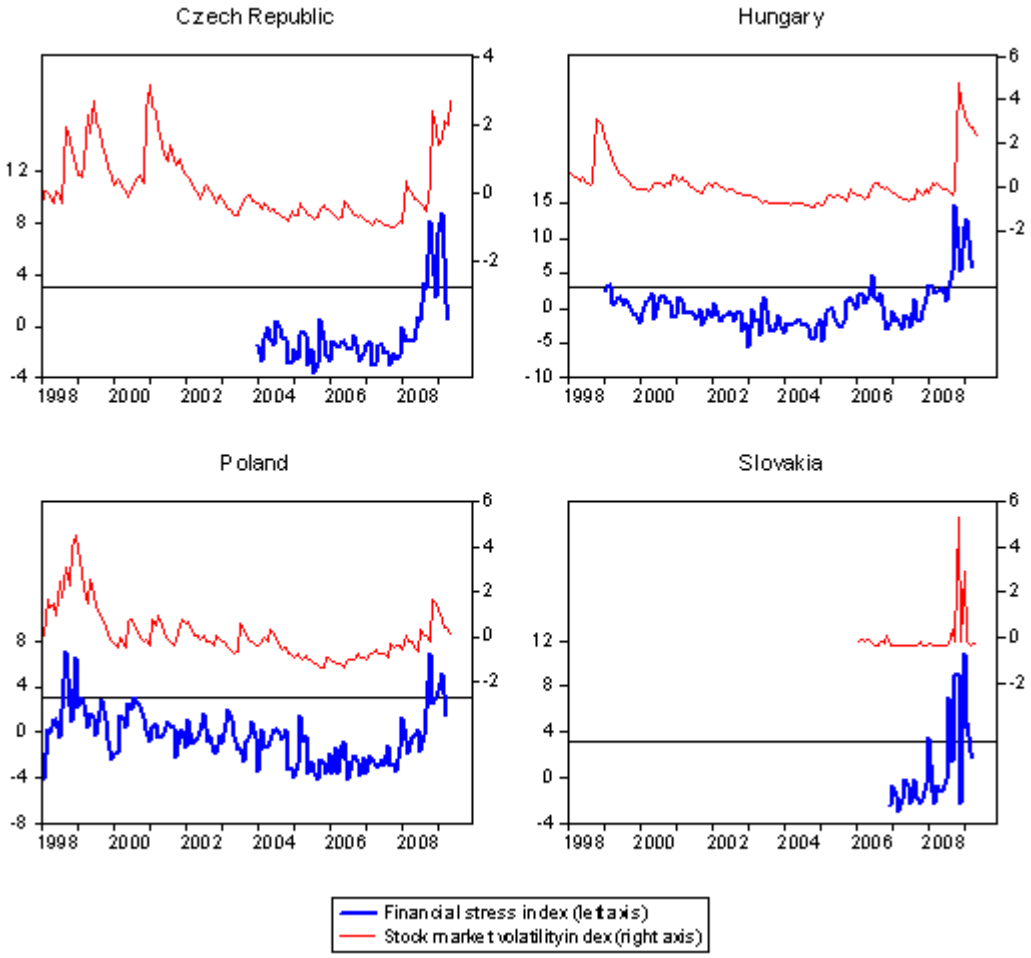
Figure 1 plots the time series of the financial stress index together with one of its sub-indices, the stock market volatility index for the analyzed 4 countries. According to the indices, these countries have been hit by as large shocks before 2005 as during the recent global financial crisis. Apparently, Poland's financial stability was as much at risk in 1998 as in 2008. Although the financial stress index is not available for the other three countries for the year 1998, we know that these countries were affected just as much by the default of Russia on its external obligations in 1998 and the collapse of Long Term Capital Management in the same year as Poland. This is also reflected by the stock market volatility index in Figure 1. Another episode of financial stress was the dot-com crash that distressed mostly the Czech market at the end of 2000 and at the beginning of 2001.

In order to get some idea on how transparency changes in periods of financial stress, we plotted the annual changes of the transparency index against the financial stress index in Figure 2. It clearly shows that the relationship is non-linear and negative. In relatively calm periods, when the stress index was below 3, central banks either increased the degree of transparency or maintained the previous level. During periods of financial stress (higher values of the financial stress index), the transparency of central banks in the CEE region has hardly changed. This finding is not an artificial consequence of the lack of data for the stress index for certain periods and countries. The relationship between financial stress and transparency is qualitatively the same, if we measure the stress with the stock market volatility index that is available for almost the entire sample.

Slovakia that joined the Euro zone in 2009 and imported a much higher degree of transparency from the ECB than they had before.

[3] See Section 4.2.3 about the details of the financial stress index.

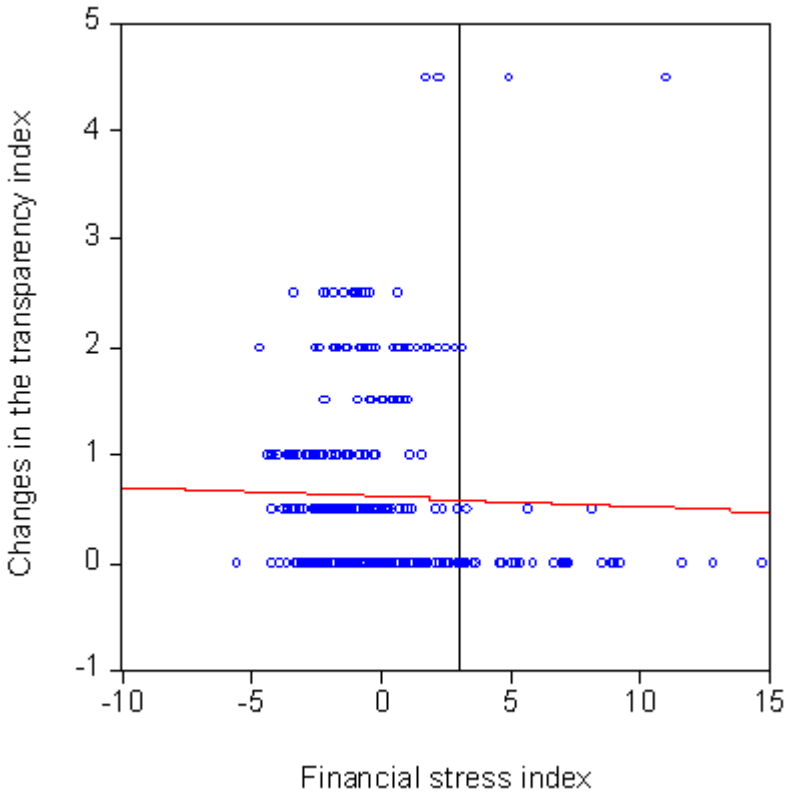
Figure 1: The financial stress index and the stock market volatility index between January 1998 and April 2009.



Source of data: Cardarelli et al. (2009).
Note: The horizontal line is at value 3 of the left axis.

Fortunately, our data on the 4 CEE countries makes it possible to judge some explanations for the lack of changes in the transparency index. Since transparency was not at its peak in the major part of the investigated period, and there were plenty of opportunities for central banks to become more transparent, it would not be fair to blame the transparency index for being bounded. It is more plausible that it is the financial stress that limits transparency.

Figure 2: Annual changes in the transparency index plotted against the financial stress index. Sample: January 1998 – April 2009, countries: Czech Republic, Hungary, Poland, and Slovakia.

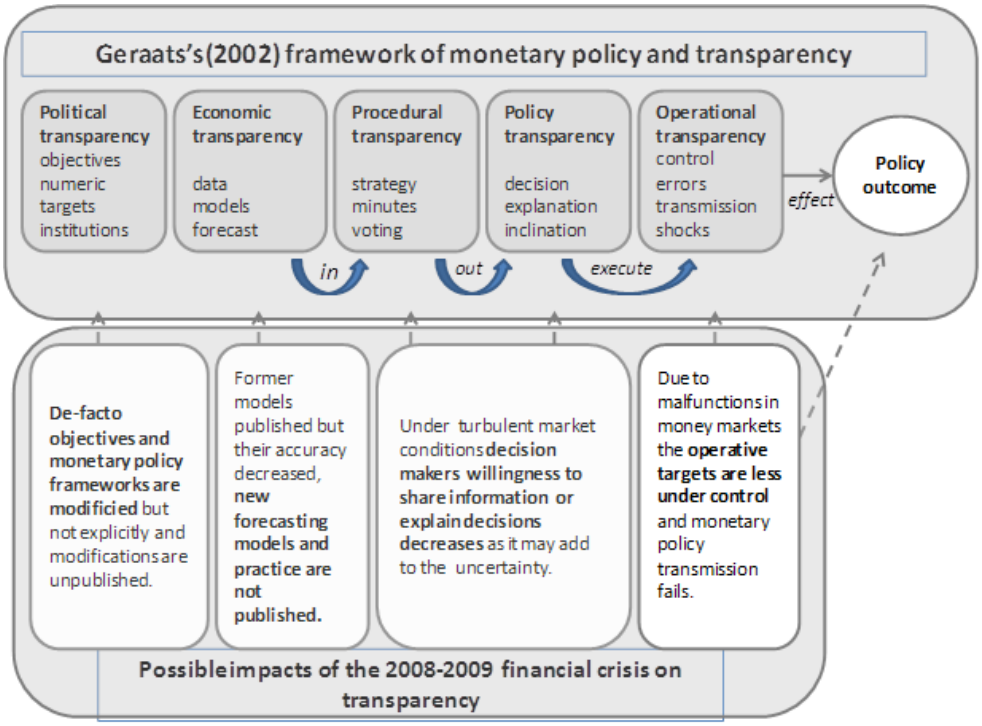


Source of data: Cardarelli et al. (2009).
Notes: Higher values of the transparency and stress indices are associated with a higher degree of transparency and more stress respectively.
The red line is the regression line.
The vertical line is at value 3.

3. What dimensions of transparency have been affected by the financial crisis?

Geraats (2002) distinguishes 5 dimensions of transparency that are (1) political transparency, (2) economic transparency, (3) procedural transparency, (4) policy transparency, and (5) operational transparency. Each of these dimensions is measured separately by the sub-indices of the transparency index. And the transparency index is the simple sum of the sub-indices. We showed in the previous Sections that recent updates of the transparency index reflect almost unchanged circumstances on average. This is also true for the sub-indices, because central banks have not made significant changes to their practices that are measured by the index. For instance, they kept on publishing their economic models, strategies and decisions. In this Section, we examine how transparency changed in each of its 5 dimensions. We argue that all aspects of transparency have been affected by the financial crisis, and the impact was unfavorable. Figure 3 summarizes our arguments.

Figure 3: Components of the transparency index and the possible impacts of the financial crisis.



Political transparency: as the financial crisis highlighted vulnerabilities in the financial systems in many countries, central banks became already formally recognized as an important pillar in the systemic supervisory institutional framework. However, it is in the shroud of opacity how responsibility for financial stability influenced the priority of central bank objectives. For example, Fed governor Ben Bernanke noted that central bank independence is essential, but it cannot be unconditional. "We are committed to exploring new ways to enhance the Federal Reserve's transparency without compromising our mandated monetary policy and financial stability objectives." Borio (2009) claims that, stemming from informational gains the financial supervisory role of central banks can lead to synergies with the price stability objective. Nevertheless, the potential conflict of new goals with the price stability can affect transparency negatively.

In addition, central banks have not even had legal mandate to follow the new objectives, while most central banks updated their policy goals in practice. Many central banks have targeted lower interest rates than their announced key policy rates. The ECB, for example, tolerated that short-term money market rates have been tied to the overnight deposit rate of the ECB, which implies an unannounced monetary loosening.

In a recent study, Geraats (2008) also found that central banks across all monetary policy frameworks had become more transparent during the last decade, although there are significant differences in the degree of information disclosure across monetary policy frameworks. Central banks with inflation targeting have achieved the highest level of transparency, while monetary and exchange rate targeters have exhibited the lowest level in information disclosure. Although in terms of de-jure monetary frameworks central banks have not changed since the financial crisis in 2008, de-facto frameworks altered immensely, implying changes in communication practices, too.

Economic transparency: most central banks had to realize that old models and economic data no longer apply in the post-financial-crisis "new world order". Furthermore, conceptual understanding of the new world will take many years, as the data shortage also represents an obstacle for statistical

analysis and forecasting. Under these circumstances central banks publish their usual reports, models and forecasts. So they seem transparent at first sight, while central bank economists and decision makers have lost their faith in these models and decision making is influenced more and more by expertise, judgment and gut feelings.

Procedural and policy transparency: while many central banks promptly announce monetary policy decisions, and the explanation of decisions in normal times, most central banks are reluctant to communicate severe systemic distress and extraordinary risks, because it may just add to the turmoil and become self-fulfilling.

Operational transparency: many central banks introduced unconventional monetary policy instruments in order to counteract the adverse effect of increased counterparty risk that led to the lack of liquidity in the markets and jumps in the prices. The markets have been supplied by much fewer information about these new instruments than about conventional instruments before. The next Section gives an overview on the unconventional instruments that were applied by the central banks in the CEE region in the crisis, and also on their impact on central bank transparency.

3.1. Transparency and new monetary policy instruments

The Eijffinger-Geraats transparency index was developed in an environment where central banks used almost exclusively the policy rates as an instrument to achieve their objectives, the primary objective being price stability in most cases. However, after the Lehman crisis, many central banks introduced unconventional monetary policy instruments (see a classification of these instruments in Yehoue et al., 2009) and objectives other than the price stability gained higher priority. Since the Eijffinger-Geraats index is not able to capture the transparency related to these new instruments, we provide a brief assessment about how the new measures could alter central bank transparency. In this Section we review the practice of the 4 CEE central banks and that of the ECB.

One of the new central bank measures introduced during the crisis provided liquidity for horizons longer than one day. Three CEE central banks in our sample (the Czech Republic, Hungary and Poland) applied these instruments with maturities ranging from 2 weeks to 6 months. In contrast, in Slovakia the domestic interbank market was sufficiently liquid given the imminent euro adoption, thus the SNB did not have to introduce new measures. [4] The ECB introduced long-term liquidity providing operations with maturities up to 1 year. (See ECB, 2009).

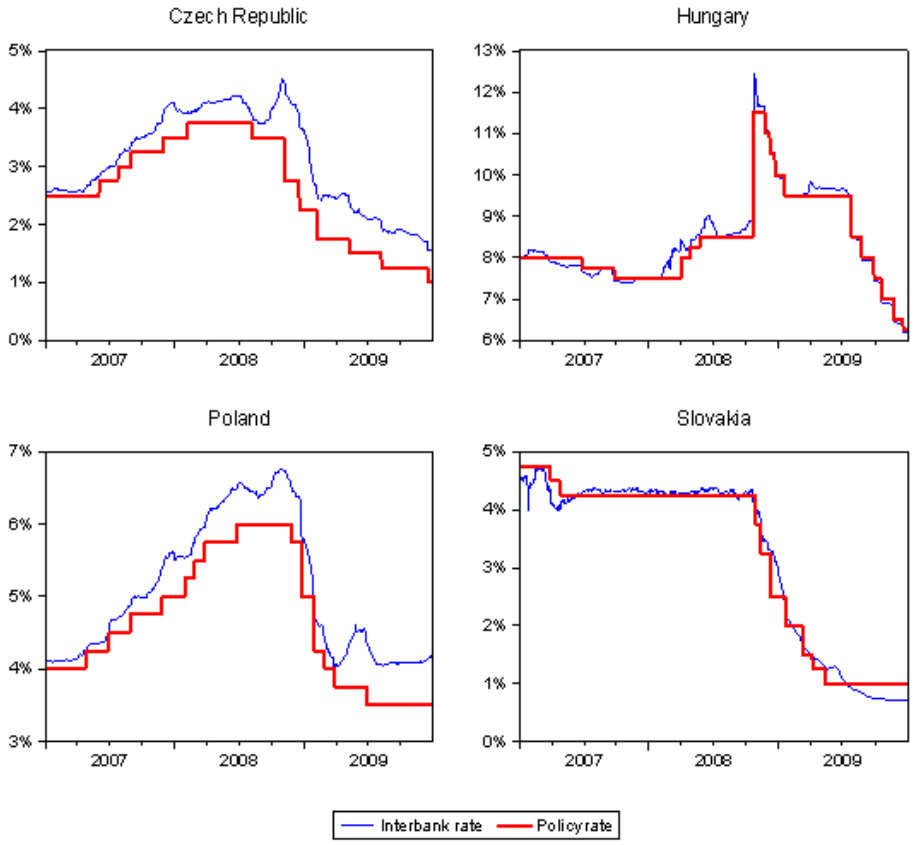
A common feature of the CEE countries is that their banking systems operate with a liquidity surplus. Therefore, there is no need for the monetary authorities to act as a liquidity provider in normal times. It was the malfunctioning of interbank money markets during the crisis that forced commercial banks to hoard liquid assets and necessitated the active assistance of the central bank.

It is evident from Figure 4 that the 3-month interbank rates were above the policy rates on the Czech and Polish markets for several months after the Lehman crisis. This wedge has not reflected interest rate hike expectations, but the reluctance of banks to provide credit to each other on the interbank market due to higher counterparty risk. [5] In other words, the wedge was a premium for the extra risk. One of the objectives for liquidity providing measures was to reduce this premium. The premium not only makes loans expensive, but distorts the transmission mechanism as well, *i.e.*, the transmission

[4] http://www.nbs.sk/_img/Documents/ZAKLNBS/PUBLIK/SFS/SFS2008A.pdf
[5] See the minutes of the CNB and NBP in the period between 2008 and 2009.
http://www.cnb.cz/en/monetary_policy/bank_board_minutes/;
http://www.nbp.pl/homen.aspx?f=/en/onbp/organizacja/minutes.html

from policy rate to market rates. The CNB explained their measure with the aim of fostering the functioning of the government bond market. Similar considerations prompted MNB to provide liquidity to primary dealers of the Hungarian government bond. The ECB had a further motivation to reduce long-term yield in a situation where the zero bound to the policy rate became effective.

Figure 4: Central bank policy rates and 3-month interbank money market rates between 2007 and 2009.



Source: CNB, MNB, NBP, NBS, ECB.
Notes: The interbank rates are the PRIBOR (Czech Republic), the BUBOR (Hungary), the WIBOR (Poland) and the BRIBOR (Slovakia).
For Slovakia, the policy rate is replaced by that of the ECB and interbank rate is replaced by the EURIBOR since January 2009.

Since central banks shifted from influencing market rates by setting the policy rate to directly intervening on the market, the overall transparency of the central bank can only be assessed by judging how much information has been revealed on these new instruments. Central banks disclosed the pricing and the quantity of these instruments. However, they were less transparent regarding the decision making about these instruments relative to the transparency of setting the policy rate.[6] It is worth mentioning that even with perfect transparency, the effect of these on money markets would have been uncertain. For market participants to know what will be the market interest rates in the future, it is not enough to have information about the decision making of the central banks but also about how liquidity situation will be changed in the interbank market.

[6] For example, the ECB disclosed the following information related to the pricing of its long-term instrument: "In subsequent longer-term refinancing operations the interest rate applied may include a spread in addition to the rate on the main refinancing operations, depending on the circumstances at the time."

In both Poland and the Czech Republic, some of the interest rate cuts at the end of 2008 as well as in 2009 were explained by the above mentioned distortion of the transparency mechanism: the aim was to bring the market interest rates in line with the interest rate which is considered optimal by the central bank.[7] For market participants, this again could make it difficult to understand how exactly the central bank wanted to perform its monetary policy: by using new instruments to reduce market interest rates or by reducing the policy rate which can contribute to lower market interest rates if the premium on this latter remains unchanged. On the other hand, rate cuts were partly explained by arguments related to financial stability in which case it does not necessarily went against the logic of inflation targeting since the risks of undershooting the inflation goals were more pronounced.

The MNB began to purchase government bonds in autumn 2008. The motivation was to restore the smooth functioning of the market and reduce the liquidity premium.[8] Though the purchases were performed in a transparent way, via a tender procedure, the market did not have a clear idea of the level of long-term interest rates that the central bank intended to reach. Possibly, neither could the central bank specify how much of the increase in the government bond yields was due to liquidity premium, and not caused by fundamentals; thus, it was more difficult for market participants to forecast long-term interest rates. The covered bond purchase program of the ECB since June 2009 (ECB, 2009) can be assessed in a similar way; the targeted long-term interest rate was not revealed.

The MNB, the NBP and the ECB introduced currency swap instruments (Yehoue et al., 2009). The CEE countries supplied EUR and USD against domestic currencies as well as CHF against EUR, while the ECB provided USD and CHF. The aim was to provide foreign currency liquidity to the banking system and also to reduce the stress in financial markets (Moessner and Allen, 2010). Banai et al. (2009) describes central banks acting as 'FX lender of last resort'. Regarding swap operations, the market didn't have a clear idea on how decisions about the pricing of these instruments were made. E.g. the NBP communicated only that its price (the swap point) would be close to market prices.[9] Nevertheless, the lower transparency of the swap instruments possibly affected the uncertainty related to future interest rates denominated in domestic currency less.

To conclude, the use of unconventional monetary policy instruments in the CEE region possibly lowered the central bank transparency regarding the objectives of the instruments, the explanation of decisions, or the achievement of operating goals, which are all important dimensions of transparency.

4. Empirical analysis of the effect of transparency on economic uncertainty

Some theoretical considerations and some stylized facts reviewed in Section 3 suggest that central banks become less transparent during periods of financial stress and this drop of transparency is not captured by the transparency index. In this Section, we use regression analysis to examine both the observed and the unobserved component of transparency and their affect on economic uncertainty. Following the practice of Swanson (2004), and Ehrmann et al. (2010), we measure uncertainty by the forecast accuracy of survey expectations and also by the dispersion of views of survey participants.

[7] E.g. according to the Minutes of the CNB on 17 December 2008, "... the imperfect transmission of monetary policy rates had to be compensated for by making larger changes to monetary policy rates." http://www.cnb.cz/en/monetary_policy/bank_board_minutes/2008/amom_081217.html

[8] http://english.mnb.hu/engine.aspx?page=mnben_pressreleases_2008&ContentID=11643

[9] http://www.nbp.pl/Homen.aspx?f=/en/aktualnosci/2009/swap270409en.html

4.1. Econometric model and the hypotheses to be tested

Our benchmark econometric model is given by

$$y_{i,t} = \beta_{0,i} + \beta_1 TR_{i,t} + \beta_2 FSI_{i,t} + \beta_3 \sigma_{i,t} + \epsilon_{i,t}, \quad (1)$$

where $y_{i,t}$ denotes the dependent variable characterizing the forecasts in country i formed at time t. More precisely, it measures either the degree of disagreement across individual forecasters, or the forecast accuracy. On the right-hand-side of the equation, $TR_{i,t}$ and $FSI_{i,t}$ denote the transparency index and the financial stress index respectively. The transparency index is either the total index, *i.e.*, the sum of the sub-indices measuring different aspects of transparency, or one of the sub-indices. The volatility of the variable to be forecasted is $\sigma_{i,t}$, and $\epsilon_{i,t}$ is the error term.

The *hypothesis* that is usually tested in the literature is that the quality of forecasts depends negatively on central bank transparency ($\beta_1 < 0$), i.e., forecasters disagree less and make smaller forecast errors if the central bank is more transparent. As a first step, we also test the above hypothesis, however, our main focus is on the coefficient of the financial stress index $FSI_{i,t}$. Some theoretical considerations and some stylized facts reviewed in Section 3 suggest that central banks became less transparent during periods of financial stress and this decline of transparency could not be measured by the transparency index. Our aim is to provide empirical evidence for the presence of the unobserved reduction of transparency. The idea is to detect the unobserved component through its effect on the forecasts. The unobserved decline of transparency is likely to have the same effect on the forecasts as the observed component. The latter is that lower degree of transparency is associated with larger forecast errors and higher dispersion of views under our first hypothesis. Suppose that the first hypothesis is true, moreover, financial stress influences the forecasts dominantly through the changing transparency of the central bank. Under these two assumptions a positive coefficient of the financial stress index ($\beta_2 > 0$) implies that there is a positive measurement error in the transparency index during financial stress.

It is important to note that the above interpretation depends highly on its assumptions. While we can easily test the first assumption, we cannot test the second one. The reason is that we can hardly distinguish empirically between the direct and the indirect effect of financial stress on the forecasts, where the latter works through the changing transparency of the central bank. Therefore, if the coefficient of the financial stress is positive, then all we can say is that either the unobserved component of transparency declines during periods of financial stress, or that financial stress has a direct effect on the forecasts.

We control for the country fixed effect by $\beta_{0,i}$ that captures some country specific characteristics. These characteristics are, for instance, the following: how difficult it is in general to forecast the interest rate of the country; what the general level of skills of the forecasters is in the country, and also whether the dispersion of views is shaped by the interactions between the forecasters, *i.e.*, whether there is a dominant forecaster in the country who is followed by some others.

In addition to the country fixed effects, we control for the volatility of the variable to be forecasted $\sigma_{i,t}$. We expect that the higher the volatility is, the more difficult the task of forecasting becomes. Hence, both the degree of disagreement and the absolute forecast error ($\beta_3 > 0$) increase.

4.2. Data

In our empirical exercise, we use survey data on forecasts of short interest rates and long interest rates. In addition, we use historical data of these rates, in order to evaluate the performance of these forecasts. Finally, we apply some measures of transparency and a financial stress index. This section provides a detailed description of these data. Moreover, it discusses how the control variables are constructed.

4.2.1 Data for the dependent variable

We use the survey data of the Consensus Economics for both of the dependent variables in Equation (1), *i.e.*, the degree of disagreement across individual forecasters, and the forecast accuracy. Consensus Economics surveys the views of a large group of professional forecasters on the future short and long-term interest rates. It reports forecasts for a broad set of countries, including emerging countries in the CEE region. For the countries we analyze, the forecasted short-term interest rate is the 3-month interbank rate,[10] while the long-term rate is 10-year government bond yield.[11] The forecasts cover both short (3-monts) and long (1-year) horizon predictions. The sample is spanned by *January 2003 and December 2009*. The *frequency* is bimonthly prior to May 2007, afterwards it is monthly. Therefore, we have 58 forecast periods in our sample. Consensus Economics started to survey long-term forecasts only in 2006, therefore the sample of these forecasts is shorter. See Table 2 on some summary statistics of our measures of the degree of disagreement and the forecast accuracy.

We measure *the degree of disagreement of the individual forecasters* by the *standard deviation*. Our choice is motivated by the fact that this statistics is readily available for us, as it is reported by the Consensus Economics. An alternative measure would be the inter-quartile range. The latter has the advantage over the standard deviation of not being sensitive to outliers. Ehrmann et al. (2010) used both measures in an empirical exercise similar to ours, and they found all of their results robust to the choice of the dispersion measure. Their finding supports that it is sufficient to use only the standard deviation of the individual forecasts as a measure of cross-sectional dispersion.

We measure the *forecast accuracy* by the *absolute forecast error of the consensus forecast*, where the *consensus forecast* is the cross-sectional mean of the individual forecasts. This statistics, just like the standard deviation, is also reported by the Consensus Economics. In this respect we deviate again from the methodology of Ehrmann et al. (2010), since they used the *average absolute forecast error* and not the absolute error of the average forecasts. The average absolute forecast error depends not only on the forecast accuracy of the consensus forecast, but also on the dispersion of forecasts across individual forecasters. The latter is already captured by our previously introduced measure for the degree of disagreement. Since there is no point to measure the same effect twice, we decided to make our measure for forecast accuracy as much orthogonal to the degree of dispersion as possible. For this reason the absolute forecast error of the consensus forecast seemed to be a better choice than the average absolute forecast error.

The historical data of the end-of-month short-term and long-term interest rates are from the Bloomberg. We collected interest rate data not only for the Czech koruna, Hungarian forint, Polish zloty, and Slovakian koruna, but also for the euro. We used the short-term euro rate as the historical rate for Slovakia from January 2009 on, when Slovakia joined the euro zone.

[10] The only exception is Hungary, where the forecasted short rate is the 3 month Treasury Bill rate.
[11] The interest rate is measured in percentage and so is its standard error and the forecast error.

Table 2: Summary statistics for the cross-sectional dispersion and the forecast accuracy in the Consensus Economics dataset. Sample: 2003-2009, countries: Czech Republic, Hungary, Poland, and Slovakia.

	Standard deviation of the individual forecasts				
	Num. obs.	Mean (%)	Std (%)	Min (%)	Max (%)
Short-term interest rates - in 3 months	232	0.29	0.17	0.10	1.10
Short-term interest rates - in 12 months	232	0.45	0.22	0.10	1.60
Long-term interest rates - in 3 months	160	0.31	0.17	0.10	1.30
Long-term interest rates - in 12 months	160	0.42	0.21	0.10	1.40
	Absolute forecast error of the consensus forecast				
	Num. obs.	Mean (%)	Std (%)	Min (%)	Max (%)
Short-term interest rates - in 3 months	217	0.54	0.62	0.000	3.51
Short-term interest rates - in 12 months	187	1.26	1.08	0.010	5.85
Long-term interest rates - in 3 months	160	0.55	0.59	0.001	4.45
Long-term interest rates - in 12 months	132	0.72	0.84	0.007	5.15

Source: Consensus Economics

4.2.2 Measures of central bank transparency

We use the traditional measure of central bank transparency, the so-called transparency index developed by Geraats (2002). It distinguishes 5 dimensions (political, economic, procedural, policy, and operational) described in Section 3. Each of these dimensions is measured separately by 3 sub-indices. All the 15 sub-indices of the transparency index can take the value of 0, ½ or 1 according to the practice of the investigated central bank implying that the total index can take the minimum of 0 and the maximum of 15 (the higher value indicating a more transparent central banking practice).

Central bank communication practices have been surveyed by Eijffinger and Geraats (2006), Dincer and Eichengreen (2007), and Siklos (2010) using the same methodology. In our empirical analysis we used the latest update by Siklos (2010). We implemented, however, the following minor modifications in his dataset. The Czech National Bank and National Bank of Hungary have been publishing individual voting records since 2008 and 2005 respectively, hence the value of sub-index 3.c is changed to 1 from 0.5 for both countries. Furthermore, Slovakia introduced the euro in January 2009, therefore, we assigned the values of the transparency index of ECB to Slovakia since then.

4.2.3 Measures of financial stress

We use the financial stress index (FSI) that has been constructed by Balakrishnan et al. (2009).[12] This index is a modified version of the comprehensive index of Cardarelli et al. (2009). Both indices have three subcomponents: (i) banking sector (the slope of the yield curve, TED spread, beta of banking sector stock), (ii) securities markets (corporate bonds spread, stock market returns and time-varying volatility of stock return) and (iii) exchange rate (time varying volatility of NEER change). In contrast to the index of Cardarelli et al. (2009), the index of Balakrishnan et al. (2009) has been developed for emerging economies. For instance, it consists of measures for exchange rate pressures and sovereign debt spread that are more relevant for emerging economies than to developed ones.

[12] The series of the financial stress index can be downloaded from http://www.imf.org/external/pubs/cat/longres.cfm?sk=23039.0

4.2.4 Volatility of the variables to be forecasted

In order to judge how transparency and financial stress affect the quality of forecasts, we control for the overall difficulty of forecasting. In the model specification of Equation (1), the control variable is the annualized volatility of the variable to be forecasted. It is calculated from the daily interest rate data of 20 days preceding the survey date. The daily historical data are from Bloomberg.

4.3. Estimation results

This Section summarizes the estimation results of Equation (1). In order to see which aspects of transparency can be the most important in terms of coordinating individual expectations, not only the total index of transparency is used as explanatory variable but also some of the sub-indices measuring different aspects of transparency. In certain dimensions, there is only moderate variation in the data, or the sub-index correlates highly with some other explanatory variables disabling us to run the regression. These dimensions are the political transparency, the policy transparency, and the operational transparency. The low variation in the political transparency is due to the fact that all central banks have already complied with most of the criteria of this aspect of transparency in the sample.

Tables 3 and 4 report the estimates for the forecasted short rate and long rate respectively. The left panels of Table 3 show our results on the *dispersion of individual short rate forecasts*. Whenever the parameter of the transparency index or sub-index is significant, it is negative. Therefore, we can say that central bank transparency coordinates survey expectations in the sense of reducing the degree of disagreement over the 3-month-ahead and 1-year-ahead short rates. Moreover, the procedural aspects of transparency seem important as they have parameter estimates significant at 1% for both the short horizon and the long horizon forecasts. Its effect is significant also in economic terms. For instance, if a central bank starts to provide an explicit policy rule or strategy that describes its monetary policy framework, then its transparency index increases by 1. Our estimates suggest that this measure decreases the standard deviation of the individual forecasts of the 3-months-ahead short rate by 8 basis points given everything else remains unchanged. This effect is not negligible, because the standard deviation of these forecasts is between 10 and 110 basis points as it is reported in Table 2.

Our results on the *forecast accuracy* reported by the panels on the right-hand-side in Table 3, are in line with those on the dispersion of forecasts. Higher transparency is associated with significantly better forecasts. For instance, if the sub-index of the procedural transparency increases by 1, like in our previous example, then the absolute forecast error of the 3-months-ahead short rate decreases by 40 basis points ceteris paribus. This effect is comparable in magnitude to the sample mean of the absolute forecast errors, which is 54 basis points. (See Table 2.)

Table 4 reports the estimates for the *long rate*. Surprisingly, central bank transparency has the opposite effect on the long-term rate forecasts than on the short rate forecasts. Higher degree of transparency mostly comes with significantly bigger absolute forecast errors and more disperse views on the future 10 year government bond yields. One potential explanation of this finding is provided by Morris and Shin (2002). They demonstrate that when central banks have noisy private information on the long-term interest rate and market participants rely too much on public information then higher central bank transparency can lower social welfare and increase uncertainty.

Table 3: The effect of central bank transparency and financial stress on dispersion of the individual forecasts and forecast accuracy, where the forecasted variable is the short rate. Sample: 2003-2009, countries: Czech Republic, Hungary, Poland, and Slovakia.

Transparency is measured by index or sub-index	2	3	4	5	Total	2	3	4	5	Total
Dependent variable	Standard deviation of the individual forecasts for the short-term interest rates with forecast horizon 3 months					Absolut forecast error of the consensus forecast for the short-term interest rates with forecast horizon 3 months				
Transparency	-0.00	-0.08***	0.15	0.08	-0.02*	-0.31***	-0.4***	-	-	-0.24***
(t-stat)	(-0.2)	(-3.44)	(0.86)	(0.86)	(-1.37)	(-5.03)	(-2.94)	-	-	(-4.22)
Financial Stress	0.01***	0.02***	0.01***	0.01***	0.02***	0.01	0.04***	-	-	0.03**
(t-stat)	(3.01)	(4.72)	(2.91)	(2.91)	(3.4)	(0.44)	(2.63)	-	-	(1.82)
Volatility	3.26***	2.66***	3.26***	3.26***	3.09***	1.28	-0.59	-	-	-0.35
(t-stat)	(3.48)	(3.28)	(3.63)	(3.63)	(3.43)	(0.36)	(-0.19)	-	-	(-0.11)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes
Observations	169	169	169	169	169	162	162	-	-	162
R2	45.23%	49.28%	45.56%	45.56%	45.92%	21.75%	26.19%	-	-	26.08%
Dependent variable	Standard deviation of the individual forecasts for the short-term interest rates with forecast horizon 1 year					Absolut forecast error of the consensus forecast for the short-term interest rates with forecast horizon 1 year				
Transparency	-0.05**	-0.11***	0.03	0.01	-0.04***	-0.51***	-0.28*	-	-	-0.25***
(t-stat)	(-2.33)	(-3.26)	(0.14)	(0.14)	(-2.39)	(-4.13)	(-1.51)	-	-	(-2.8)
Financial Stress	0.02***	0.02***	0.01***	0.01***	0.02***	-0.04	-0.02	-	-	-0.02
(t-stat)	(2.76)	(3.75)	(2.44)	(2.44)	(3.29)	(-1.17)	(-0.71)	-	-	(-0.62)
Volatility	1.6	0.95	1.82	1.82	1.38	4.79	4.7	-	-	3.76
(t-stat)	(0.97)	(0.61)	(1.08)	(1.08)	(0.86)	(0.66)	(0.65)	-	-	(0.53)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes
Observations	169	169	169	169	169	153	153	-	-	153
R2	44.61%	48.39%	43.47%	43.47%	45.96%	35.97%	33.39%	-	-	35.28%

Source: author's calculations

Notes: ***, **, * indicate significance at 1%, 5% and 10% respectively.

Table 4: The effect of central bank transparency and financial stress on dispersion of the individual forecasts and forecast accuracy, where the forecasted variable is the long rate. Sample: 2006-2009, countries: Czech Republic, Hungary, Poland, and Slovakia.

Transparency is measured by index or sub-index	2	3	4	5	Total	2	3	4	5	Total
Dependent variable	Standard deviation of the individual forecasts for the long-term interest rates with forecast horizon 3 months					Absolut forecast error of the consensus forecast for the long-term interest rates with forecast horizon 3 months				
Transparency	0.12***	0.1***	0.35***	0.18***	0.04***	0.28***	-0.01	0.84***	0.42***	0.08**
(t-stat)	(4.62)	(2.53)	(4.62)	(4.62)	(4.72)	(2.76)	(-0.11)	(2.76)	(2.76)	(2.23)
Financial Stress	0.02***	0.02***	0.02***	0.02***	0.02***	0.05**	0.06**	0.05**	0.05**	0.05**
(t-stat)	(6.71)	(5.1)	(6.71)	(6.71)	(5.88)	(1.79)	(1.81)	(1.79)	(1.79)	(1.68)
Volatility	1	1.02	1	1	1.13	4.7	3.99	4.7	4.7	4.77
(t-stat)	(1.01)	(0.99)	(1.01)	(1.01)	(1.13)	(0.84)	(0.69)	(0.84)	(0.84)	(0.85)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	121	121	121	121	121	121	121	121	121	121
R2	39.86%	38.72%	39.86%	39.86%	40.59%	34.57%	33.43%	34.57%	34.57%	34.26%
Dependent variable	Standard deviation of the individual forecasts for the long-term interest rates with forecast horizon 1 year					Absolut forecast error of the consensus forecast for the long-term interest rates with forecast horizon 1 year				
Transparency	0.09**	-0.05	0.28**	0.14**	0.02*	0.04	0.24**	0.13	0.06	0.04
(t-stat)	(2.06)	(-0.89)	(2.06)	(2.06)	(1.37)	(0.46)	(1.78)	(0.46)	(0.46)	(0.94)
Financial Stress	0.01**	0.02**	0.01**	0.01**	0.01*	-0.02	-0.03	-0.02	-0.02	-0.03
(t-stat)	(1.74)	(1.95)	(1.74)	(1.74)	(1.64)	(-0.8)	(-0.98)	(-0.8)	(-0.8)	(-0.85)
Volatility	0.02	-0.34	0.02	0.02	0.01	-3.47	-2.82	-3.47	-3.47	-3.23
(t-stat)	(0.02)	(-0.36)	(0.02)	(0.02)	(0.01)	(-0.49)	(-0.4)	(-0.49)	(-0.49)	(-0.45)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	121	121	121	121	121	121	121	121	121	121
R2	55.02%	54.14%	55.02%	55.02%	54.45%	41.81%	42.23%	41.81%	41.81%	41.89%

Source: author's calculations

Notes: ***, **, * indicate significance at 1%, 5% and 10% respectively.

An alternative explanation is that our sample for the long rate forecasts is not representative and we cannot generalize the results obtained from the period between 2006 and 2009. Obviously, we do a false generalization, if the relationship between the transparency index and the forecasts is time-varying and atypical during the years of financial stress. Unfortunately, we cannot check the stability of this relationship for the long rate forecasts, since these data are available only from 2006 on. However, we can do it for the short rate forecasts. To see whether the relationship between the transparency index and the short rate forecasts is time-varying, we re-estimate Equation (1). However, this time the sample period is the same as that of the long rate forecasts, *i.e.*, spanned by 2006 and 2009. Table 5 shows the results for the regressions, whenever estimation is possible. Unlike the estimates for the short rate obtained on the long sample (Table 3), but similar to the estimates for the long rate obtained on the short sample (Table 4), the estimates in Table 5 suggest that higher transparency is associated with higher degree of disagreement and less precise forecasts.

Table 5: The effect of central bank transparency and financial stress on dispersion of the individual forecasts and forecast accuracy, where the forecasted variable is the short rate. Sample: 2006-2009, countries: Czech Republic, Hungary, Poland, and Slovakia.

Transparency is measured by index or sub-index	2	3	4	5	Total	2	3	4	5	Total
Dependent variable	**Standard deviation** of the individual forecasts for the short-term interest rates with forecast horizon **3 months**					**Absolut forecast error** of the consensus forecast for the short-term interest rates with forecast horizon **3 months**				
Transparency	0.033	0.04***	0.1	0.05	0.01	-	0.14*	-	-	0.14*
(t-stat)	(0.5)	(1.19)	(0.5)	(0.5)	(0.67)	-	(1.35)	-	-	(1.35)
Financial Stress	0.02***	0.02***	0.02***	0.02***	0.02***	-	0.04	-	-	0.04
(t-stat)	(4.17)	(4.35)	(4.17)	(4.17)	(4.07)	-	(2.87)	-	-	(2.87)
Volatility	3.01***	3.04***	3.01***	3.01***	3.02***	-	-2.42	-	-	-2.42
(t-stat)	(3.01)	(3.04)	(3.01)	(3.01)	(3.01)	-	(-0.79)	-	-	(-0.79)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	-	Yes	-	-	Yes
Observations	121	121	121	121	121	-	114	-	-	114
R2	52.83%	52.86%	52.83%	52.83%	52.92%	-	20.12%	-	-	20.12%
Dependent variable	**Standard deviation** of the individual forecasts for the short-term interest rates with forecast horizon **1 year**					**Absolut forecast error** of the consensus forecast for the short-term interest rates with forecast horizon **1 year**				
Transparency	-0.02	0.05***	-0.05	-0.02	0	-	1.16***	-	-	1.16***
(t-stat)	(-0.23)	(1.23)	(-0.23)	(-0.23)	(0.02)	-	(5.65)	-	-	(5.65)
Financial Stress	0.02*	0.02*	0.02*	0.02*	0.02*	-	-0.02	-	-	-0.02
(t-stat)	(3.41)	(3.19)	(3.41)	(3.41)	(3.39)	-	(-0.93)	-	-	(-0.93)
Volatility	1.35	1.39	1.35	1.35	1.35	-	-2.63	-	-	-2.63
(t-stat)	(0.64)	(0.66)	(0.64)	(0.64)	(0.64)	-	(-0.88)	-	-	(-0.88)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	-	Yes	-	-	Yes
Observations	121	121	121	121	121	-	105	-	-	105
R2	44.50%	44.74%	44.50%	44.50%	44.47%	-	39.10%	-	-	39.10%

Source: author's calculations

Notes: ***, **, * indicate significance at 1%, 5% and 10% respectively.

Although central banks may know less about the long rate than the market, it is unlikely to be true for the short rate given that its most important determinant is the policy rate. Therefore, we think that the explanation of Morris and Shin (2002) has only limited relevance at rationalizing the estimated relationship between transparency and forecasts. However, it is still an open question why the forecasts became relatively less precise in countries with more transparent central banks in the recent years.

Turning to our second hypothesis, the coefficient of the financial stress index is either insignificant or significantly positive in Tables 3 and 4. The most probable explanation for this is that financial stress has a strong direct effect on the forecasts, and the tenser is the situation, the higher is the forecast error and the dispersion of views. However, if we think that all the direct effect of financial stress on uncertainty is controlled by the volatility of the variable to be forecasted, then the financial stress index accounts only for the effect that works through the central bank transparency. By assuming that in periods of financial stress the unobserved component of transparency declines and affects the forecasts the same way as the observed component, then the parameter of the stress index should have

the opposite sign as that of the transparency index. This is true for the estimates for the short rate obtained on the long sample.[13] Therefore, this finding supports the presence of unobserved decline of transparency during the financial turmoil.

Finally, we interpret the estimates for the coefficient of the volatility. The sign of the estimates are in line with our previous expectations. Higher historical volatility of forecasted interest rates is associated with higher forecast error and dispersion of views most of the times. Moreover, the estimates are significantly different from zero when the dependent variable is the standard deviation of the 3-month-ahead short rate forecasts. (See the upper left panel in Table 3).

5. Conclusions

In the past, financial crises have always triggered important changes in the operation of central banks. The recent financial crisis has also played a pivotal role in forming central bank practices; however, recent updates of the transparency index reflect unchanged circumstances. Almost all the measurable aspects of transparency are the same in 2008 as in 2006, since central banks have kept on publishing their economic models, strategies and decisions.

In this paper we have argued that during the recent financial crisis central banks indeed had become less transparent as an obvious consequence of applying unconventional measures. This decline of transparency has not been captured by the standard measure of transparency developed by Geraats (2002). In order to provide empirical evidence for the presence of measurement error in the transparency index, we have investigated the effect of transparency on the quality of survey forecasts.

By examining the forecasts for the *short rate* of a sample covering the period between 2003 and 2006 and 4 CEE countries, we found the following. First, the more transparent the central banks are, the smaller the absolute forecast errors are and the smaller the degree of disagreement across individual forecasters is after controlling for the overall difficulty of forecasting. This finding is in line with the literature. (See Swanson 2004, and Ehrmann et al. 2010). Second, forecasts for the short rate are less precise and more diverse in periods of financial stress even after controlling for the transparency index, the volatility of the variable to be forecasted and some country specific effects. This second finding can be explained either by the direct or the indirect effect of financial stress on economic uncertainty. If the dominant effect is the indirect one, which works through the central bank transparency, then we can think of the financial stress index as a proxy for the unobserved component of transparency and the second finding can be interpreted as an indirect evidence for the measurement error in the transparency index.

Acknowledgement

We are grateful to Pierre Siklos, Nergiz Dincer, Barry Eichengreen and Petra Geraats for providing us with their data on transparency index.

[13] In contrast to the estimates for the short rate forecasts obtained on the long sample, the estimates obtained on the short sample are such that the parameter of the stress index has the same sign as that of the transparency index in most of the cases. (See Tables 4 and 5.) Given that the short sample is not representative, we cannot rely much on these results.

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Toolkit for stimulating corporate lending

Gergely Fábián Péter Fáykiss Gábor Szigel

Following the 2009 recession, a turnaround in corporate lending has not occurred in Hungary. Therefore, the risk of the phenomenon known in the literature as a creditless recovery has risen significantly. Based on empirical analyses, a creditless recovery leads to a slower and protracted economic recovery. Moreover, the escalating sovereign debt crisis in the peripheral euro area and banking regulatory responses in the EU may lead to more pronounced credit supply constraints by European banks, which could negatively affect the subsidiaries in the CEE region. The MNB staff has written numerous internal reports on the reasons behind the subdued lending and policy recommendations for reversing this trend. In this paper, we summarize the findings of this background research and review the state's possible intervention alternatives to boosting corporate lending on both the supply and demand side. We think that the most effective way of intervention is that the public sector assumes partial credit risk from the banking sector, since a contraction in corporate lending can be attributed to credit supply constraints stemming from strong risk aversion by banks, making interest rates cuts ineffective in stimulating demand for loans. At the same time, it is important to note that state interventions involve substantial fiscal costs; simple, cost-free solutions do not exist among the options. Partial credit risk assumption is not an exemption either, as it translates into government expenditures quickly due to loan losses.

Keywords: corporate lending, credit supply constraints, loan guarantee schemes, lending stimulation, state-owned development banks

1. Introduction

Following the deep recession in 2009, the Hungarian economy started to grow in 2010. This took place despite the marked year-on-year contraction of 5% and 3% in corporate and household loans outstanding, respectively, in 2010, which continued in 2011 as well. As a result, the risk of the phenomena known in the literature as a 'creditless recovery' has risen considerably in Hungary. Although the April 2011 forecast of the MNB had expected a turning point in corporate lending for the last quarter of 2011 (Chart 1), the turning point failed to come. Our earlier forecasts – which relied *inter alia* on forward-looking information received from banks – had always proven too optimistic in this respect. As a result of the latest macroeconomic developments, in the new autumn forecast the turning point was anticipated only in the second half of 2013.

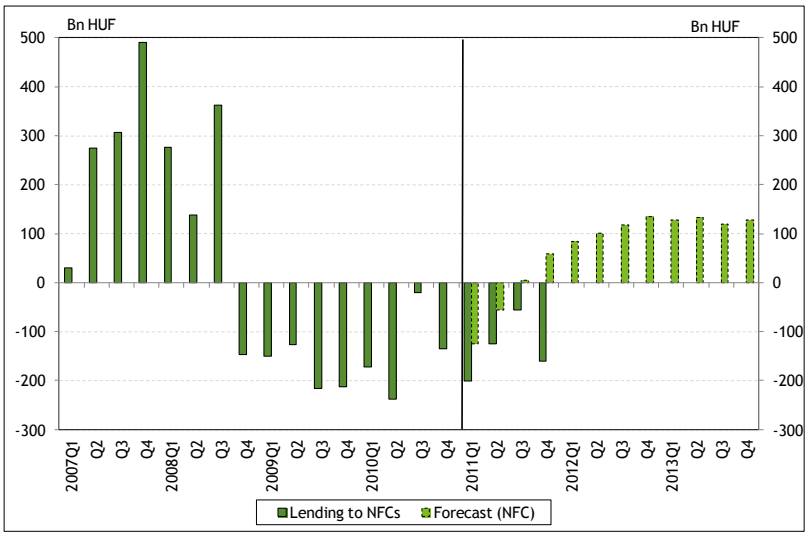
Although according to a recently published study of the IMF a creditless recovery is not unusual at all, it can be considered suboptimal compared with recoveries supported by lending (Abiad et al., 2011). The empirical data in the abovementioned study show that economic growth is slower in the case of creditless recoveries, and the convergence of GDP to the long-term potential growth rate lasts longer after the nadir of the crisis.[1]

A creditless recovery is basically attributable to insufficient bank credit supply and to disruptions in the financial intermediary system. This paper is organised as follows: Chapter 2 of our analysis presents the facts pointing to credit supply constraints in the decline of corporate lending in Hungary.

[1] For more details on a creditless recovery see: MNB (2011).

Chapter 3 describes the theoretically possible government measures to stimulate lending. Finally, in the summary the argument is summarised that as supply constraints typically stem from low risk appetite, sharing the risks between banks and the state (partial assumption of risks by the state) may theoretically be the most efficient means of removing the constraints, even though it inevitably involves fiscal costs as well.

Chart 1: Net credit flow forecast of the MNB April 2011



Source: MNB data.

Note: The data includes domestic banks, foreign branches and financial enterprises. For Q4 2011 the data of financial enterprises are not yet available.

2. Supply constraints in corporate lending in Hungary

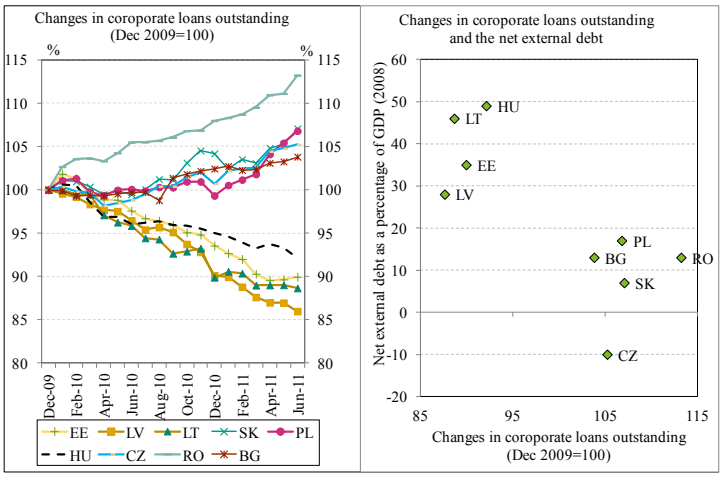
2.1. Corporate lending in a regional comparison[2]

The contraction in corporate lending in Hungary can be considered meaningful in a regional comparison as well. Considered both from the outbreak of the crisis (October 2008) or from the nadir of the recession (end-2009), the decline in corporate loans outstanding was only larger in the Baltic countries than in Hungary (Chart 2, left side). Although – except for Romania – corporate loan dynamics cannot be considered expressly strong in other countries either, loans outstanding have already increased since end-2009 in Poland, the Czech Republic, Bulgaria and Slovakia. Accordingly, the region can be divided into two well-separated units: where corporate lending already grew in 2010 and where it declined further sharply.

The most fundamental difference between the two groups of countries lies in the dependency on external financing (Chart 2, right side), although it is correlated to several other factors that determine banks' ability to lend (such as risk premium, loan-to-deposit ratio of banks etc.). In the Baltic countries and Hungary, deleveraging has been much greater, due to the intense narrowing of funding sources and the increase in funding costs following the onset of the crisis. All of this resulted in a shock to the willingness and ability to lend of the banking sectors, which also significantly relied on external funding due to excessive lending to households. This also points to the assumption that the regional differences observed in the dynamics of corporate lending might be related to the differences in loan supply and to differences in the willingness and ability to lend of the banking sectors concerned.

[2] This chapter is based on Fábián et al. (2010).

Chart 2: Change in corporate loans outstanding (exchange-rate adjusted) and external debt in a regional comparison



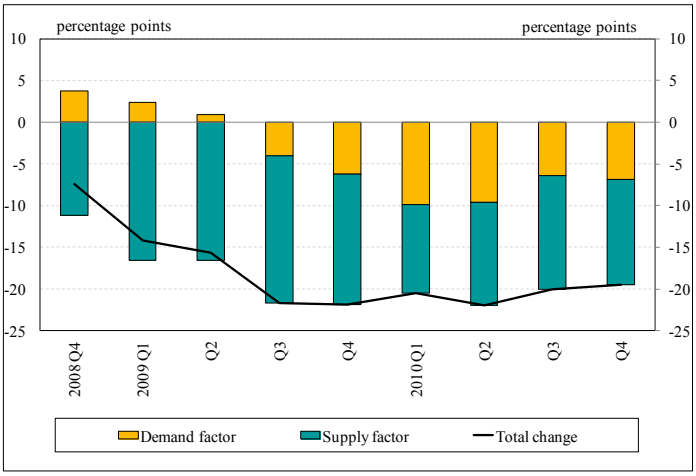
Sources: national central banks.

Note: on the left side of the chart, on the horizontal axis, the changes in corporate loans between end-2009 and June 2011 are depicted.

2.2. Decomposition of corporate lending into demand and supply factors using econometric methodology[3]

The econometric estimations carried out by the MNB also confirm that the fall in domestic corporate lending is mainly attributable to credit supply constraints (Sóvágó, 2011). According to the research, presented concisely in the April 2011 *Report on Financial Stability* of the MNB, 2/3 of the 20 percentage point contraction in corporate loans outstanding since the outbreak of the crisis can be explained by stricter credit supply, while 1/3 was due to the fall in demand for loans (Chart 3). The estimations suggest that the contribution of demand and supply to the contraction in lending changed over time: at the outbreak of the crisis the freezing of credit supply was the dominant factor, but as the recession unfolded, demand for loans also started to decline in 2009. Thereafter, from end-2009, simultaneously with the upturn, credit supply constraints became slightly looser, but started to strengthen again from mid-2010.

Chart 3: Changes in the annual growth rate of corporate loans outstanding compared to 2008 Q3 and its decomposition into demand and supply components



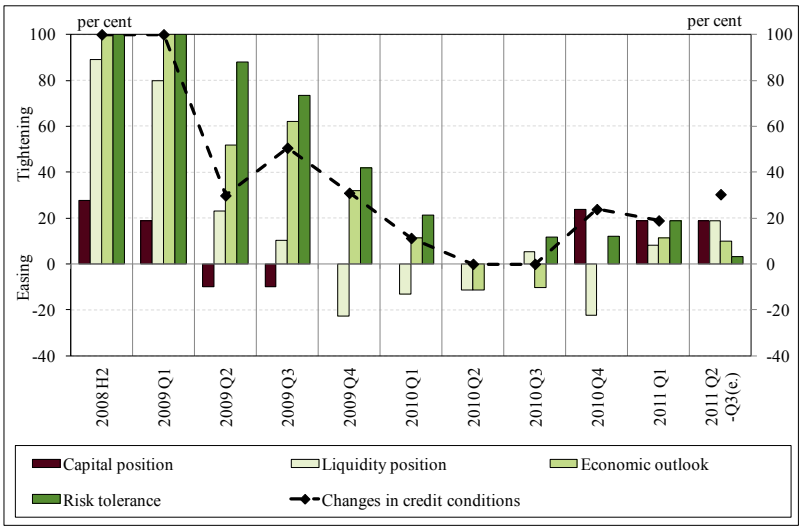
Source: MNB data.

[3] This chapter is based on Sóvágó (2011).

2.3. Changes in corporate credit supply on the basis of the lending survey[4]

Essentially, the lending surveys of the MNB also showed that credit supply constraints were growing steadily in corporate lending in the previous years: since 2007, with minor interruptions, banks continuously indicated tightening in corporate credit conditions. As regards demand, starting from 2010, they perceived an increase in demand for loans (Chart 4), mainly for short-term loans.

Chart 4: Changes in banks' credit conditions and in the factors contributing to the changes



Source: MNB (2012).

In 2009, credit institutions cited liquidity, unfavourable economic prospects and low risk tolerance as the factors contributing to tightening (Chart 4). From end-2009 on, as a result of government and central bank measures as well as parent bank support, the liquidity problems had been resolved (therefore, at that time the liquidity situation would have justified easing in credit conditions). At the same time, the uncertain economic outlook and banks' low risk tolerance continued to contribute to a further tightening of credit supply. In late 2010 and early 2011, some banks reported that liquidity and capital constraints pointed to a tightening in credit conditions again, but it was more of a bank-specific problem rather than a systemic problem as in 2008 or 2009. Liquidity constraints are attributable to the tighter (or more expensive) availability of external funding, whereas the capital problems are related to the marked deterioration in the profitability, which impairs banks' internal capital accumulation and capital attraction abilities. Evaluating the period under review as a whole, it can be stated that since the outbreak of the crisis in October 2008 banks' low willingness to lend and to take risks contributed to the increase in credit supply constraints to a much greater extent than their ability to lend.

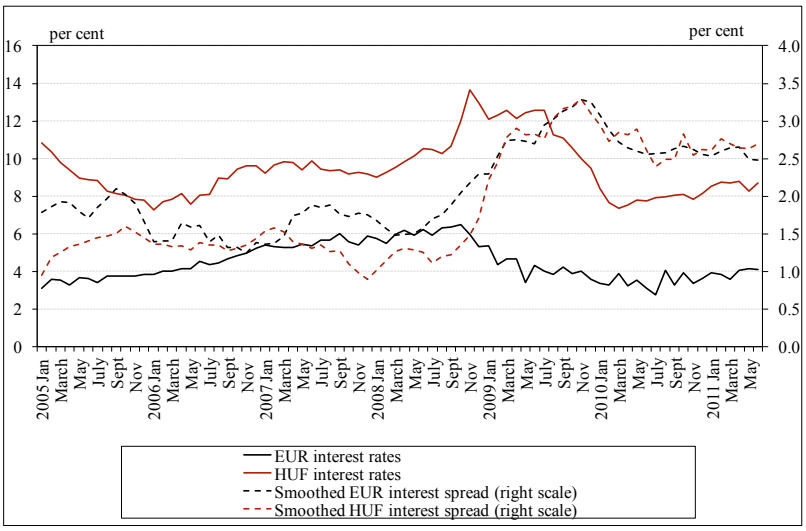
In addition to non-price credit conditions, developments in interest rates and interest rate premiums also point to the existence of credit supply constraints. Immediately after the outbreak of the crisis, due to mounting loan losses and rising external funding costs, banks added roughly 150 basis points to the interest rate spread over money market rates of the new forint and euro corporate loans (Chart 5). Starting from early 2010, premiums began to decline slightly, but they remain roughly 100 basis points above the pre-crisis levels.

In spite of the increase, the currently observed level of the interest rate premium may still be considered low, as it indicates that under the current credit conditions mainly those clients receive

[4] This chapter is based on the lending surveys of the MNB:
http://english.mnb.hu/Kiadvanyok/hitelezesi_felmeres

loans whose creditworthiness is considered to be good, whereas the borrowing of small and medium-sized enterprises, which are considered to be riskier, is more limited. The survey of the MNB shows that banks expect an average (credit) risk premium of 100-200 basis points in the case of loans to large corporations and 400–800 basis points in the case of loans to SMEs. Of course, banks are afraid that the riskier SMEs are unable to afford such high premiums, so they adjust their non-price conditions in such a way that only more creditworthy companies have access to bank credit. Therefore, the average interest rate premium is closer to the premiums of the more creditworthy large-company clients, while riskier segments have rather limited access to credit.

Chart 5: Average lending rates and premiums on corporate loans disbursed by the domestic banking sector



Sources: MNB interest rate statistics, own calculations.

Note: The premiums were calculated with the 3-month moving average of the spreads between the current corporate loan interest rates and the 3-month interbank rate of the given foreign currency.

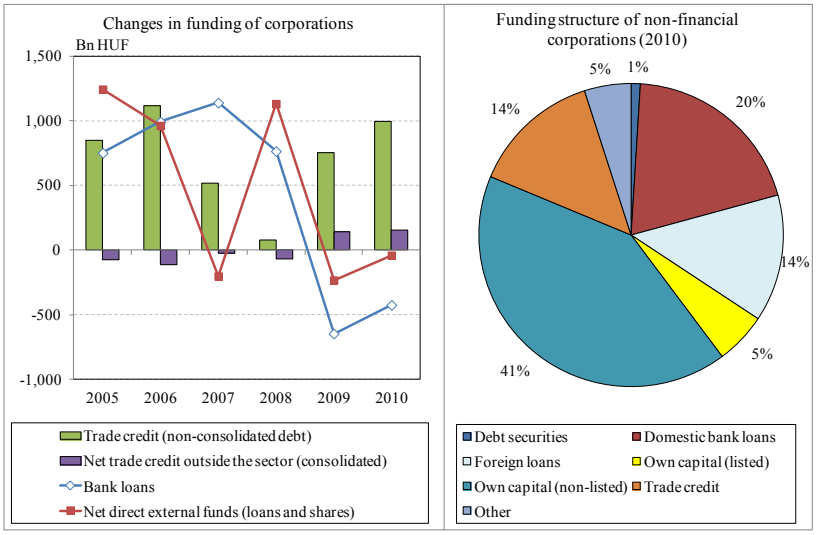
These interest rate spreads have another very important implication. If the risk premium of riskier companies is 400–800 basis points, it is easy to see that the size of the central bank policy rate has a relatively limited impact on their financing, because the risk premium itself constitutes a great portion of their borrowing rate. Accordingly, the reduction of the refinancing interest rate does not necessarily increase the scope of companies that banks might lend to (as the client interest rate still remains higher than what borrowers can afford with moderate-risk projects).

2.4. Decline in non-bank lending

The drying up of the sources of bank financing is a problem especially because for non-financial corporations it is not easy to access funds from other sources. Borrowing directly from abroad is only available for a narrower scope of large companies. The domestic corporate sector received such additional funds neither in 2009 nor in 2010: its net financing position vis-à-vis the rest of the world declined, although to a lesser extent than vis-à-vis the banking sector. However, the non-consolidated stock of trade credit increased significantly, although based on earlier years' experience this is also correlated to changes in economic activity (Chart 6). However, the increase in trade credit in 2009 during a deep recession was unusual: it could mean that by then the increase in trade receivables may have been an indicator of the scarcity of funds and not a concomitant of the expansion of economic activity, and may have indicated an increase in payment deadlines and gridlocks. In other words, companies tried to make up for the lost funding sources with their own suppliers, although this in itself

did not mitigate but may even have added to the liquidity tension. It did not bring any new funds into the system, while in the case of bankruptcies due to the increase in gridlocks, contagion risks also grow. In addition, the extension of payment deadlines and the increase in trade credit outstanding is a more difficult path to take for smaller firms which are in a weaker bargaining position; therefore, these funding sources are asymmetrical. According to the data available, among the liabilities of large corporations, the proportion of trade accounts payable is at least twice the value typical of SMEs.

Chart 6: Composition of the sources of financing of the non-financial corporate sector at end-2010 and the exchange rate-adjusted annual changes in funding sources[5]



Source: MNB, financial accounts.

3. Toolkit for stimulating corporate lending

This chapter contains a review of all theoretically reasonable means that could stimulate lending. Chart 7 provides an overview of their operating principles and mechanisms:[6]

Stimulating lending by government intervention is possible via the following mechanisms:

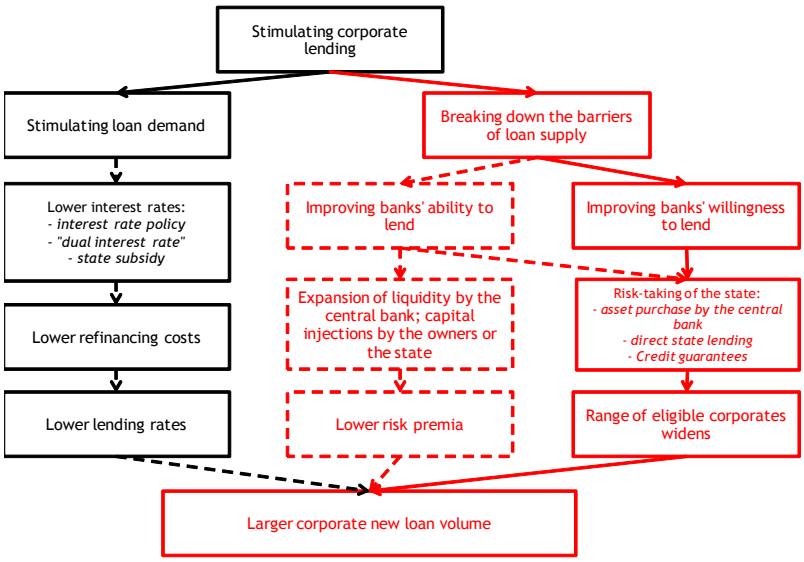
- *stimulation of demand*: recommended if demand factors dominate in the fall in lending; in this case a reduction in the refinancing interest rate and its pass-through into lending rates may help;
- *stimulation of supply*: here the primary objective is to ease credit supply constraints. Bank loan supply is determined by two factors:
  - *ability to lend*: one of the key elements of credit supply is whether the bank has sufficient liquidity and capital necessary for additional lending. If credit supply is constrained by low lending capacity, the central bank may provide liquidity (basically in domestic currency), whereas the state may provide long-term loans/capital to banks for lending (its most extreme form is bank consolidation, but the capital position is not the underlying

[5] The change in trade credit also contains the change in trade credit vis-à-vis the rest of the world. However, in 2010 – according to the balance of payments statistics – the magnitude of its value was around HUF 130 billion, which is not meaningful compared to the increase of HUF 1,000 billion in the non-consolidated trade credit of non-financial corporations. Therefore, it can be stated that trade credit predominantly grew due to accumulated debts among domestic companies. The data regarding the stock of sources of financing are not consolidated.
[6] This chapter relies on the paper of Balogh and Nagy (2009).

reason for the downturn in lending and this is not addressed here). In addition, the state may take measures encouraging bank owners to increase capital;

- *willingness to lend (to take risks)*: the other important – and objectively less measurable – element of credit supply is willingness to lend, which is determined by how much risk banks are willing to take in new lending. Willingness to take risks is basically a subjective factor, which is related to the economic outlook and the deterioration in the quality of the existing portfolio. If banks' willingness to take risks is low, they will not extend loans even if their ability to lend and capacities would allow new lending (except for clientele considered to be the most creditworthy). In this case, a bank will not lend to riskier clients even with a higher interest rate, as its basic objective is exactly to avoid taking risks. If credit supply is limited by low willingness to take risks, the state can help by assuming some of the credit risks, i.e. the bank and the state share the risks.

Chart 7: Possibilities of intervention by the state to stimulate lending



Source: MNB data.

As presented in Chapter 2, the facts indicate that the downturn in corporate lending in Hungary primarily took place because of strong credit supply constraints, and within that mainly due to the low willingness to take risks (although to some extent due to deteriorating corporate creditworthiness as well). Nevertheless – for the sake of completeness – the possibilities of stimulating the demand for loans are also examined.

However, when evaluating the measures, two things must be kept in mind in all cases:

- *fiscal costs*: state interventions will have fiscal costs due to both the tools serving the artificial reduction of interest rates and the assumption of risk: immediately upon the assumption of the funding costs, and in a delayed manner when assuming the risks;
- *allocation problems*: both the means that serve the purpose of stimulating credit demand and supply entail the risk that companies that would use these funds 'improperly' (for example for arbitrage instead of investment) or inefficiently (not economically making losses) also receive loans. As the provider of the support (i.e. usually the state) does not have the monitoring and risk management capacities that could allow the prevention of these distortions in allocation (due to the information asymmetries between the debtor and the creditor even commercial

banks are unable to do this perfectly), these problems are inevitable. The more comprehensive and wide-ranging a given programme is, the greater the misallocation problems may be. The misallocation problem may be mitigated to some extent, although not terminated entirely, if commercial banks – with their own risk-taking – are given greater responsibility in the allocation of funds.

Bearing all of this in mind, five types of tools for stimulating corporate lending are presented below. The tools are classified according to state participants and the ways of their interventions.

3.1. Stimulating lending using monetary (central bank) tools

- *liquidity increasing (quantitative easing)*: central banks can expand the quantities and extend original maturities of central bank credit facilities, can reduce the reserve ratio, may expand the scope of securities or other instruments (corporate loans) serving as eligible collateral. These tools allow a discretional extent of increasing the liquidity of banking sectors denominated in domestic currency. In addition, central banks may even provide liquidity for the banking sector in foreign currency to the debit of the foreign exchange reserves (for example, in the form of FX swaps or foreign exchange bank loans), although the available means are limited to the amount of the FX reserves in this regard;
- *non-traditional central bank financing of corporations with risk-taking (credit easing)*: in this case, central banks – circumventing commercial banks –directly assume the credit risk of companies and provide financing for them. This can mainly be implemented through securities purchases carried out at the money and capital markets (purchases of corporate bonds, short-term commercial paper, CPs and all other securitised corporate loans). Central banks do not finance corporations directly by lending, as this would lead back to the one-tier banking system (which, in line with EU legislation, is prohibited in Hungary by the MNB Act);
- *central bank refinancing of corporate loans at a preferential interest rate (without risk-taking)*: here central banks provide targeted refinancing with preferential interest rates for commercial banks, which use it for lending to a targeted scope of beneficiaries. In this solution, central banks do not take on corporations' credit risk directly, they only provide cheap financing for them. As a result, a 'dual interest rate level' is created, as for the scope of companies targeted in the programme (but only for them!); this step is equivalent to a reduction of the policy rate;
- *interest rate policy*: pursuing a traditional counter-cyclical interest rate policy, central banks can reduce the policy rate and in parallel with that the financing costs available in domestic currency. However, in the inflation targeting system, interest rate policy primarily serves the purpose of achieving price stability. Therefore, an interest rate policy aimed at stimulating corporate lending may conflict with this primary objective.

Following the outbreak of the crisis, it was mainly the *tools for increasing the liquidity* of the banking sector which were predominantly applied in practice in Hungary. Accordingly, in late 2008/early 2009 the MNB reduced the minimum reserve ratio, expanded the scope of eligible collateral in repo transactions (with local government bonds and the mortgage bonds of affiliated enterprises), and introduced 2-week and 6-month forint loan tenders as well as initially overnight, later 3- and 6-month FX-swap standing facilities. The latter measure was also completed with a lending incentive of administrative nature: the eligibility criterion in the 6-month swap tenders was that participating banks took on maintaining their corporate loans outstanding corresponding to the end-2008 level. Although the sanction for not meeting this condition was the exclusion from the tender, the number of participating commercial banks declined quarter by quarter. *Overall, these measures of the MNB were*

successful in strengthening the forint liquidity position of the domestic banking sector and in the prevention of foreign exchange liquidity problems, and restored the lending ability of the banking sector. The forint liquidity of domestic banks is very high at present. However, foreign exchange liquidity and the possibilities of obtaining long-term foreign-exchange funds are constrained for several banks, which was also reflected in the latest tightening of credit conditions (see also: Chart 4), the main underlying reason of which is the deepening of the debt crisis of the euro area. The MNB has very limited means to attenuate the resulting impacts, as the central bank cannot create liquidity in foreign currency (it can rely on assistance from foreign central banks at most), and the foreign exchange reserves allow the active use of these tools only in a limited manner and in very justified cases.

Theoretically, non-traditional central bank financing of corporations (through the *purchasing of corporate securities*) may have a positive effect on both credit supply (as in this case the central bank directly assumes the credit risk) and demand for loans, especially if the central bank buys corporate securities at a low yield (practically in a way corresponding to a preferential lending rate). In Hungary – similarly to countries where there is no developed capital or corporate securities market – no measure of this kind was taken during the crisis, because the size of the corporate bond market can be considered small. In Hungary, corporate bonds outstanding amounted to HUF 600 billion at the end of the third quarter of 2011, which is a mere 7.5% of all corporate loans outstanding; moreover, the scope of issuers is also limited to the largest and most creditworthy corporations. Taking into account the small company sizes, the development of the corporate bond market in Hungary is strongly limited, while another feasible way, the securitisation of SME loans is time-consuming and would entail significant additional costs. Moreover, the results of the recent mortgage bond purchasing programme of the MNB – which targeted a much higher-volume securities market – were also only limited in the field of market making.

Theoretically, the MNB could also *lend directly* to (non-financial) corporations. In line with EU legislation, however, this is not allowed by the MNB Act, and the central bank does not even have the necessary administrative staff; its setting up is costly, and therefore it would conflict with the low operating costs model of the central bank. Other state-owned banks, however, have already installed the necessary infrastructure, and the fiscal effect of lending performed by them is completely the same as if this task was performed by the MNB.

The effect of the *preferential central bank refinancing* of corporate loans – organised through commercial banks – is the same as that of the fiscal programmes described in Subchapter 3.2. Preferential lending can add to the liquidity in the banking system, but – after being circulated in the economy – the additional funds received by credit institutions are finally deposited in the form of MNB bills at the central bank. As the interest rate of MNB bills is higher than that of the preferential-interest credit scheme would be, this would result in a loss of the MNB and thus, with a delay of one year, in the central budget as well. Consequently, this solution means the same burden on the state budget as if the state itself extended loans to banks and corporations at a preferential interest rate. The only difference compared to direct interest rate subsidy provided by the state is that the interest rate spread appears in the budget only with a delay of one year. Moreover, due to the cheap credit, this tool mainly affects demand for loans, and may, at most, slightly improve banks' ability to lend, but would not help to increase willingness to take risks and to lend, which is the main problem (as in this case banks should continue to assume credit risks). In addition, it also should be emphasised that the more money is channelled into the economy at a lower interest rate by the central bank, the greater the decline in the actual, average central bank policy rate (which results from the average interest rate of preferential-interest and non-preferential-interest central bank instruments) is. To a certain extent, this

may lead to additional inflation. Therefore, (any form of) unlimited monetary financing conflicts with the price stability objective of the central bank, and is very harmful for the development of the economy over the long term.

Finally, *interest rate policy* itself may be a means of stimulating corporate lending. However, the same problem arises here as in the case of quantitative interventions: the primary objective of the interest rate policy is the achievement and maintenance of price stability; therefore, the suitability and applicability of this tool for achieving other targets are extremely limited. In addition, it is important to emphasise that an interest rate cut would only result in some increase in demand for loans, without having any material impact on supply constraints, which is the main reason for the decline in lending. In the SME sector, the reduction of the credit risk premiums may have a much greater effect than the cutting of refinancing interest rates.

Table 1: Summary of the advantages and disadvantages of the individual types of measures

	Advantages	Disadvantages
- General liquidity increasing ('quantitative easing')	practically, it has already been implemented, and further easing does not help, as the forint liquidity of the banking sector is high anyway; in the case of foreign exchange, it mitigates the lending constraints related to foreign exchange liquidity	it does not mitigate the constraints of risk-taking; in the case of foreign exchange it reduces the foreign exchange reserves, and increases the external vulnerability of the country
- Assumption of corporate credit risk by the central bank ('credit easing')	it mitigates the constraints of risk-taking; bypasses the banking sector	it works successfully only in a developed capital market and with developed securitisation; equivalent to fiscal risk-taking
- 'dual interest rate level': targeted and preferential central bank refinancing of corporate loans (without risk-taking)	its effect is similar to that of an interest rate cut, it reduces credit costs, and may add to credit demand	equivalent to state interest rate subsidy, but the technical settlement is more costly; lack of international examples, it does not mitigate the constraints of risk-taking; it conflicts with the primary, price-stability objective of the central bank
- policy rate reduction	it may reduce refinancing costs	it conflicts with the primary, price-stability objective of the central bank; unsuitable for solving the constraints of risk-taking

Source: authors' own construction.

3.2. Stimulating lending by fiscal subsidy (without assuming bank credit risks)

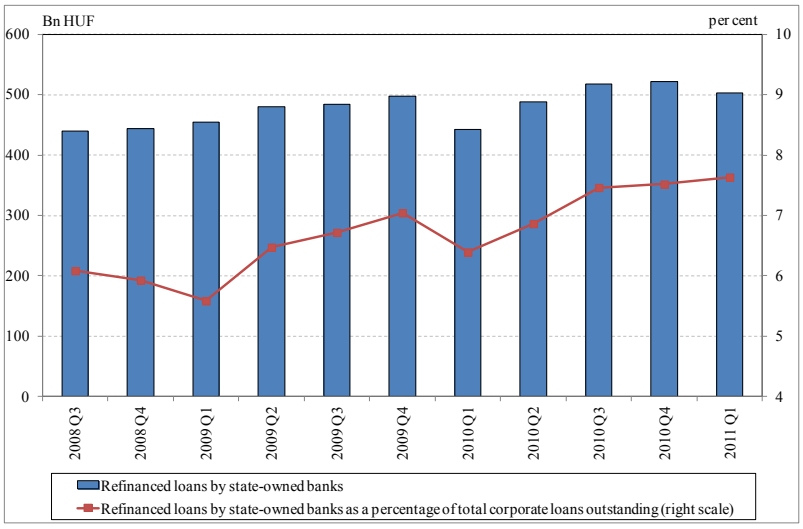
The objective of state subsidies provided for corporate lending is to reduce lending rates and thus enable companies to access cheaper credit than in the market, eventually allowing a decline in their credit costs as well as an increase in their demand for investment and through that in their additional borrowing. With some exceptions, these tools basically attempt to boost credit demand, and they are

less efficient in mitigating credit supply constraints. State subsidy that reduces credit costs and stimulates lending is feasible in the following ways:

- *direct interest rate subsidy*: in this case the bank extends the loan, and – if certain conditions are met – the state provides an interest rate subsidy for it; as a result, the bank can reduce the client's interest rate to the extent of the subsidy (for example, Széchenyi Card);
- *interest rate subsidy with refinancing*: in this case even the financing for extending the loan is provided for the bank by the state or another state participant, at a preferential price and with various conditions (for example, New Hungary credit programmes). In this case, either the state itself or the state-owned bank has to raise the funding necessary for the programme. This may also take place by using external, for example, EU, EIB or EBRD funds; in this case the cost of the preferential interest rate is borne by the external financer;
- *other measures that reduce banks' fiscal burdens depending on lending*: other measures can be for example, when the state waives a certain portion of the burdens and taxes of banks if they increase their lending to corporations.

Both in the case of the *interest rate subsidy with refinancing* and the *direct interest rate subsidy*, the difference between the preferential and market interest rates burdens the budget, thus the fiscal effect of these two forms is identical. In the case of direct state financing, refinancing may add to gross government debt, but if the funds are borrowed by an organisation outside the central budget (for example a state-owned bank), it is somewhat more expensive. Both tools raise the problem of efficient allocation: if the scope of beneficiary companies is tailored too narrowly or cautiously, the programme does not channel a significant amount of additional funds to the economy, but in the opposite case less viable projects may also have access to funds. The allocation problem is well illustrated by the fact that the losses on corporate loans directly extended by state-owned banks are significantly higher than the average of commercial banks. However, the greatest weakness of these tools is that they are unable to mitigate credit supply constraints, as the risks of lending continue to be borne by the commercial bank.

Chart 8: Interbank loans of state-owned banks (mostly refinancing loans provided to commercial banks) (exchange rate-adjusted data)



Source: MNB data.

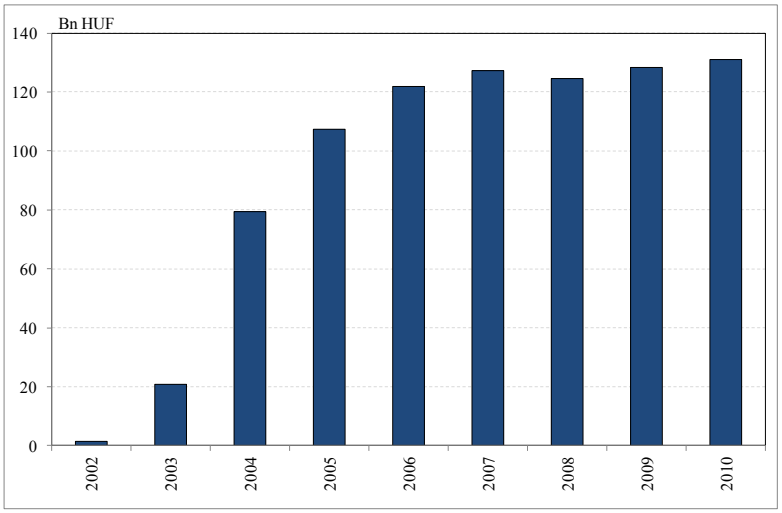
Nevertheless, it cannot be stated that subsidised credit programmes were not successful at all in recent years in Hungary. Refinancing by state-owned banks has increased since the end of 2008 (Chart 8); for

example, to date the MFB's refinanced corporate loans outstanding increased by some HUF 100 billion (more than 30%), while other interest rate subsidy programmes, mainly the Széchenyi Card stagnated, as opposed to commercial banks' considerably falling corporate loans outstanding (at the same time, in the case of the Széchenyi Card risk-taking also takes place; see the box below). All in all, the relative success of the preferential refinanced loans and other programmes is overwhelmed by the fall in commercial banks' loans outstanding.

Box 1: The Széchenyi Card Programme

The Széchenyi Card Programme is the most popular state-subsidised credit scheme. Its element, operating for the longest period of time (since 2002), is the Széchenyi Card Overdraft Facility with its upper limit of HUF 25 million, allowing small and medium-sized enterprises to obtain a credit line that can be used for a discretionary purposes (the overwhelming majority of credit applicants are micro enterprises). Since 2008, the total volume of the credit line of the Széchenyi Cards issued has stagnated at annual amount of some HUF 120–130 billion; the drawing ratio of the credit lines is also stable at 70%. The credit is made available by commercial banks from their own funding, while the state provides interest rate subsidy. The Széchenyi Card is a 'hybrid' programme in the sense that in addition to the interest rate subsidy it is also backed by guarantee institution: the Card may be applied for only with an 80% guarantee of Garantiqa Credit Guarantee Co. Ltd.; for the related fee the state provides guarantee fee subsidy for the clients. The guarantee reduces the risks of commercial banks. Last autumn, the Government completed the Széchenyi Card Programme with the Széchenyi Business Credit and the Széchenyi Investment Loan Programmes, which already target larger companies as well within the SME segment. In their case as well, the interest rate subsidy is coupled with the guarantee of Garantiqa Credit Guarantee Co. Ltd. and the relevant guarantee fee subsidy. The amount of loans extended within the framework of these programmes did not yet reach HUF 1 billion in 2010. In the summer of 2011, the Government launched the Agricultural Széchenyi Card Scheme as well, which provides an overdraft credit facility (similar to the Széchenyi Card) for agricultural enterprises, backed by the guarantee of the Rural Credit Guarantee Foundation.

Chart I: Credit lines within the framework of the Széchenyi Card Programme



Note: as the Széchenyi Cards have to be renewed annually, and the extensions are also included in the opening of new lines, the above data provide a good approximation of the outstanding credit lines as well.

Source: KA-VOSZ Co. Ltd.

The *stimulation of corporate lending by tax allowances* was discussed recently in Hungary as well. For example, there was a proposal according to which banks would have been allowed to somehow reduce the bank levy to be paid by them on the basis of the new loans extended to SMEs. Theoretically, a tool like this may have a positive impact on credit supply, as it increases the willingness to lend and may, to some extent, boost credit demand if banks pass on a portion of the allowance to the companies (in the form of cheaper lending rates). However, this positive impact can only be felt if the tax thus remitted is of adequate magnitude, and, of course, there are fiscal effects as well. In addition, this kind of tax allowance is also inefficient because it is not targeted: even those banks can use it that would lend otherwise as well.

Table 2: Summary of the advantages and disadvantages of the individual types of measures

	Advantages	Disadvantages
- provision of state interest rate subsidy or cheap bank refinancing in order to encourage corporate lending	reduces lending rates, increases credit demand	does not mitigate the constraints of risk-taking; a burden for the budget; allocation problems
- provision of interest rate subsidy from EU and foreign funds	reduces lending rates, increases credit demand; is not a burden on the budget	does not mitigate the constraints of risk-taking; stricter framework of conditions; allocation problems
- tax allowance, fiscal transfer to banks that lend to corporations	somewhat increases banks' willingness to lend; may reduce lending rates, increases credit demand	mitigates the constraints of risk-taking only slightly; a burden for the budget; not targeted

Source: authors' own construction.

3.3. Stimulating lending by partial or complete fiscal risk assumption

The credit supply constraints that are attributable to the low willingness to take risks may best be reduced if a state participant partially assumes the risk itself from the bank. There are two possible forms of this:

- *direct lending*: in this case, a state participant partially or completely takes over the lending role of banks. Under such circumstances, both loan losses and the solving of financing burden the state participant. This type of lending is performed by state-owned banks (MFB, Eximbank) in Hungary.
- *undertaking a guarantee*: in this case, the loans are still extended by commercial banks, but a state(-related) participant undertakes a guarantee for a part of the loans extended, thus reducing the risk of the bank. In Hungary, several state-related firms perform tasks like this with state counter-guarantee; based on the guarantees undertaken so far, Garantiqa Credit Guarantee Co. Ltd. and the Rural Credit Guarantee Foundation (AVHGA) are of considerable size.[7] In the case of state counter-guarantee, it is again the state that eventually bears the loan

[7] Other, smaller-sized organisations: Venture Finance Hungary Private Limited Company, Start Equity Guarantee Pte Ltd. and UNIO Guarantee Cooperative, but their total market share is a mere 1–2%. However, Venture Finance Hungary Private Limited Company (MV Zrt.) recently became the organiser of the New

losses (although it partially shares them with the commercial banks), but the fiscal costs appear in a protracted manner and with a delay.[8]

The main advantages of financing provided by state-owned banks to corporations are that it treats the root of the problem, i.e. the low willingness to take risks and that the necessary apparatus is already available. At the same time, the losses stemming from this kind of lending (or the preferential interest rate level in a given case) appear in the budget with a delay of one year. In addition, the state-owned banks themselves have to obtain the funding for such loans: although it will not be a part of the debt of the central budget, it adds to the gross government debt in a wider sense (consolidated with the debt of state-owned firms). Moreover, state-owned banks at present can obtain (foreign exchange) funds at a higher price than the Hungarian State. In addition, in the case of these programmes the aforementioned allocation problems also arise automatically (see page 7).

The state guarantee that can be applied for the SME loans is practically distributed by two major organisations: Garantiqa Credit Guarantee Co. Ltd. and the Rural Credit Guarantee Foundation (AVHGA); the latter mainly provides guarantees for companies involved in rural development. The business model is the same in the case of both organisations: the organisations undertake joint and several guarantee up to 80% of corporate loan receivables, 70% of which was counter-guaranteed by the state until June 2011. Pursuant to a recent amendment of the law,[9] however, now already 85% is counter-guaranteed by the state on the basis of the Budget Act. The extent of the guarantee is important because of the distribution of risk between the bank and the guarantee organisation, whereas the extent of the state counter-guarantee is important because of the capital position of the guarantee organisations and their ability to provide guarantees. This latter ability is also increased by the fact that in May the No. 70/2011 Government Decree reduced the risk weight of own funds (i.e. of the portion not counter-guaranteed by the state) of the guarantees undertaken by Garantiqa Credit Guarantee Co. Ltd. and the AVHGA from 100% to 50%.[10] The banks or the debtor pay a guarantee fee for the guarantee to the guarantee providing organisation. In this scheme, the state undertakes off-balance-sheet obligations (i.e. the direct debt indicators are not made worse *immediately*), but, eventually, loan losses burden the budget in this case as well. Allocation problems are somewhat smaller in this solution, as the distribution of risk between the banking sector and the state encourages banks to carry out thorough corporate credit rating and risk analysis.

Hungary Credit Guarantee Programme and the New Széchenyi Counter-guarantee Programme of the Government, which allows MV Zrt. to undertake guarantees in a total value of HUF 58 billion, with a 100% state counter-guarantee.

[8] However, this impairs the transparency of the budget to some extent, and easily produces the false illusion that state interventions actually do not entail any costs. For more details see: Kiss (2011).

[9] Act LXIV of 2011 on the Amendment of Act XCVII of 1995 on Personal Income Tax and of Act LXV of 2006 on the Amendment of Act XXXVIII of 1992 on Public Finances and other Related Acts (effective: 18 June 2011).

[10] Directive 2006/48/EC of the European Parliament and of the Council theoretically allows the regulatory authority to determine an even lower risk weight for Garantiqa's and the AVHGA's own guarantee undertakings, provided that the Commission is notified of it.

Box 2: The European practices of guarantee institutions

European comparison shows that in Hungary the role of guarantee organisations (and of state counter-guarantee) in corporate lending is considerable compared to other countries of the continent.

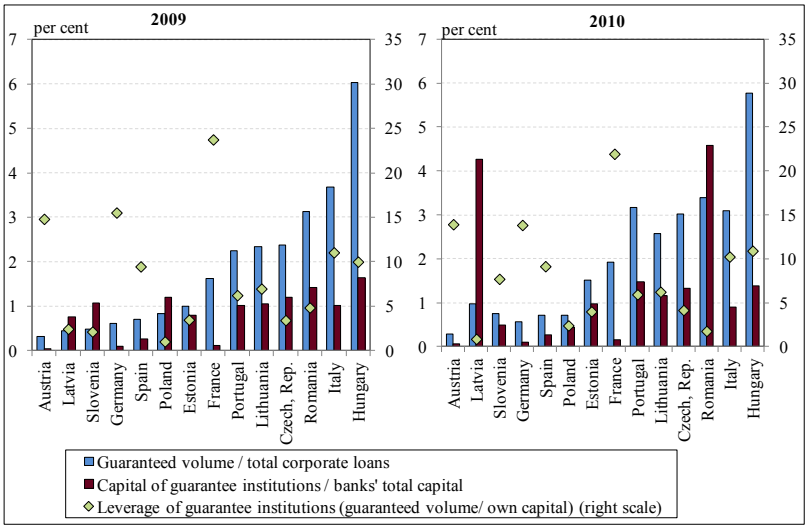
There are three main types of guarantee institutions in Europe: the state scheme that exists in Hungary as well, mutual guarantee institutions originating from the alliance of SMEs and mixed mutual guarantee institutions in which the state also participates. Firstly, mutual guarantee institutions facilitate companies' access to credit by providing guarantees, which are considered to be excellent and timely enforceable collateral. Secondly, the continuous and detailed peer monitoring of mutual guarantee institutions reduces information asymmetry, thus the membership of a given company carries a positive message for the bank, adding to its willingness to lend.

During the crisis, the role of guarantee organisations appreciated considerably: according to the data of the AECM (European Association of Mutual Guarantee Societies), new guarantee undertakings increased by 60% on a quantitative basis in 2009, compared to the earlier average growth of 8%. In addition, guarantee institutions eased their conditions, so guarantee fees declined, the portion of loans covered by guarantee increased, and they also strived to accelerate the rating procedure. A further important counter-cyclical step was the introduction of new products, such as the guarantees of leasing schemes and working-capital loans. The latter proved to be especially successful, as two thirds – nearly EUR 12 billion – of the special guarantee programmes developed for crisis management were spent on guaranteeing working-capital loans in 2009, helping nearly one hundred thousand small and medium-sized enterprises (AECM 2010). Analyses of individual data show that the credit constraint mitigating effect of mutual guarantee institutions sustained during the financial crisis as well, thus the probability of financial tensions was lower at the members (Bartoli et al., 2010).

In international comparison, the guarantee undertaking activity was remarkable in Hungary. In 2009, 6% of all non-financial corporate loans outstanding were guaranteed, while the European average was around 1.5%.[11] Moreover, the equity of guarantee institutions compared to the equity of the banking sector was also the highest in Hungary in 2009; however Hungary lost its leading position in 2010 as a result of capital injections to the guarantee institutions in other countries, namely Romania, Latvia, Portugal and the Czech Republic. The average leverage (guaranteed loans outstanding/equity) of guarantee institutions was tenfold in Hungary (although with high asymmetry between institutions), which roughly corresponds to the European average, but is below the leverage in Germany or Austria. Overall, it is evident that due to credit supply constraints there was substantial need for credit guarantees in Hungary; the downturn in corporate lending would be much stronger without them. Considering the utilisation of the guarantees, this tool can be considered successful in reducing the risk aversion of banks.

[11] However, the Hungarian data also contain the guarantees undertaken for loans to local governments and large corporations, whereas no information on this is available in the case of the data of foreign organisations. Nevertheless, if only the total guarantees undertaken for SME loans are compared to total corporate loans, the proportion of guaranteed loans would still be nearly 5%, which can still be considered remarkable.

Chart I: Total capital of guarantee institutions and guaranteed corporate loans at end-2009



Sources: ECB data and AECM (2010).

Since the outbreak of the crisis the importance of both the direct lending by the state and state-guaranteed loans has increased in the banking system. The weight of corporate loans directly extended by state-owned banks within total corporate loans outstanding grew from 2.7% in September 2008 to 4.8% (HUF 341 billion) by the end of 2011. The ratio of loans extended with state counter-guarantee exceeded even the above figure: at end-2010, the total volume of guarantees undertaken by the largest guarantee organisations amounted to 6.5% (HUF 432 billion) of corporate loans. At the same time, neither direct lending by the state, nor the increasing undertaking of guarantees was able to offset the substantial fall – more than HUF 1400 billion between October 2008 and end-2011 – in lending to corporations by commercial banks.

However, the growing role of state-owned banks and guarantee organisations was reflected in the increase in budgetary expenditures as well. In 2010, the state was burdened by around HUF 21 billion resulting from the state counter-guarantee of the risk-takings by guarantee organisations; moreover, actual expenditures exceeded the planned amount. The activity of state-owned banks also added to the general government deficit, as at the end of last year a HUF 20 billion capital injection had to be carried out.

Overall, in their present form of operation, of the two types of tools – also taking account of the fiscal costs of intervention – guarantee organisations seem to be more efficient in stimulating corporate lending:

- with the same amount of equity, guarantee organisations are able to attain much higher risk-taking and leverage (as their commitments are partly state-guaranteed and partly lower-risk off-balance-sheet items). It may be emphasised here that not all guarantee organisations use the available resources to an adequate extent: the capital adequacy of some organisations would allow the granting of much more guarantees than the present situation. Accordingly, the institutional system has significant reserves here;
- the guarantee organisations burden the budget with immediate, specific expenditures to a lesser extent – especially compared to the magnitude of risk-taking. The corporate clientele of guarantee organisations reflects a clearly better portfolio quality than that of state-owned banks: the ratio of non-performing corporate loans in the case of the latter is twice the similar

data of guarantee organisations. Presumably, one of the underlying reasons is that the risk-taking of guarantee organisations is not 100%, i.e. commercial banks also bear some part of the losses of non-performing transactions, and they are also involved in the credit rating process. This is likely to in itself reduce the allocation problems (the risk of lending to 'bad' companies). Of course, at the same time it may also mitigate the efficiency of the tool, as some extent of risk-taking by the bank is also necessary for the transactions of the guarantee organisations to be concluded. On the other hand, more and more state guarantees reduce the transparency of the budget as well, and it is also important to emphasise that the losses originating from the guarantees eventually add to the budgetary expenditures the same way.

However, it is important to underline that any possible intervention inevitably entails an increase in budgetary expenditures.

Table 3: Summary of the advantages and disadvantages of the individual types of measures

	Advantages	Disadvantages
- direct lending by the state through state-owned banks	mitigates banks' credit supply constraints by assuming the risk	a burden on the budget; implicit government debt is produced; allocation problems
- undertaking of guarantee by the state for corporate loans	mitigates banks' credit supply constraints by assuming the risk; does not (immediately) result in government debt; the distribution of risk reduces moral hazard	a burden on the budget; results in a pending commitment of the state

Source: authors' own construction.

3.4. Stimulating lending using prudential means

Prudential regulation applies to the size of the minimum expected regulatory capital of banks and to the profit-reducing loan loss provisioning, and as such it significantly influences both banks' ability to lend (because of the capital constraints) and the pricing of loans (because of the cost of capital of the regulatory capital). Therefore, in the event that the expected level of regulatory capital required with regard to corporate loans decreases,

- *the capital constraint of the bank declines*: if, for example, the capital requirement of SME loans decreases to one half, the bank (or guarantee organisation) can lend twice as much with the same regulatory capital;
- *the cost of capital included in the price of bank loans declines, and thus the lending rate may also decline*: however, its impact is in fact very limited. As the risk weight of loans to (large) corporations is 100%, i.e. the capital requirement is 8% of the exposure, the cost of capital of 100 units of a loan to a (large) corporation is 1.6 units, assuming a 20% expected ROE (return on equity). Accordingly, even the (most radical) reduction of the capital requirement of the corporate loan with the highest risk weight to zero may reduce the lending rate by barely 160 basis points at most.

However, the primary objective of prudential regulation is to make the bank (or guarantee organisation) keep capital for individual loans that is proportionate to their credit risk, and to set aside

loan loss provisioning for its outstanding loans on the basis of their expected losses. Consequently, this by itself already contradicts the objective of stimulating lending. In addition, the framework of prudential regulation is determined by the European Capital Requirements Directives, and the Hungarian regulation may only be stricter than them. However, this is not typical at present: during the implementation of the European Capital Requirements Directives in Hungary, the domestic regulation also applied the highest possible allowance for the corporate capital requirement. Thus, for example, the risk weight of SME loans according to the standard method is 75%, as opposed to the 100% risk weight of loans to large corporations (although according to anecdotal information not all commercial banks are utilising this at present). The domestic regulation of the developed method (IRB) also grants the same capital allowances for smaller companies as the European Capital Requirements Directives.As regards guarantee institutions, a more preferential classification of the public organisations that guarantee the SME holdings cannot result in a significant decline in the capital requirement.

It was mentioned above that in May the Government reduced the risk weight of own funds (of the portion not counter-guaranteed by the state) of the guarantees undertaken by guarantee organisations from 100% to 50%. As a result of this amendment, the capital adequacy of guarantee organisations may even double compared to the current values. At the same time, the objective of this step was not to attain a decline in the cost of capital of banks, but to enable guarantee organisations to provide more guarantees.

Another possibility would be if the state counter-guarantee behind the debt guaranteed by the guarantee organisations was further increased from the current level of 85% reached following the recent modification (see also Subchapter 3.3). Thus the capital requirement of banks that use this type of guarantee for their loans could decline. However, the capital reduction potential attainable in this manner is very low: from a banking aspect, the total capital requirement of the loans guaranteed by the guarantee organisations is barely 2.2%[12] (and their cost of capital is roughly 40 basis points). Moreover, extension of the state guarantee would entail the direct burdening of the budget.

In addition, theoretically, an easing of the loan loss provisioning rules is also conceivable: then banks would have to set aside lower loan loss provisions for their impaired loans, which would improve their profit and thus their capital position. However, at present as well, the relevant No. 250/2000 Government Decree provides very wide room for manoeuvre for banks, which practically must set aside loan loss provisioning on the basis of their expected losses. Further easing of this is not possible without violating accounting principles and prudential aspects.

The only material bank capital easing would be attainable through the reduction of the individual additional bank capital requirements discretionally imposed pursuant to Pillar 2 (SREP) by the HFSA, the Hungarian regulatory authority. However, theoretically, the additional capital thus required was determined on the basis of prudential considerations; therefore, its waiver with the objective of stimulating lending would have a negative effect in terms of the shock-absorbing capacity of banks.

[12] The calculation of the capital requirement of the loans guaranteed by Garantiqa and the AVHGA is as follows: the guarantee organisations undertake guarantees of up to 80% for the loans, and there is state collateral security behind 85% of it. Accordingly, from a risk aspect a loan can be divided into three parts: a part protected by state collateral security (80%x85%=68%), a part protected by the capital of the guarantee organisation (80%x15%=12%) and the risk falling upon the bank (20%). The risk weight of the state collateral security: 0%, of the portion protected by the guarantee organisations: 100%, although in the case of SME loans the risk weight of the debtor is only 75%, so the lower value has to be taken into account for SMEs. The risk weight of the part falling upon the bank: 75%. Accordingly, the risk weight of the total loan is not more than: 68%x0%+12%x100%+20%x75%=27%. 8% of it is the capital requirement, i.e. 2.16 units for 100 units of loan.

Table 4: Summary of the advantages and disadvantages of the individual types of measures

	Advantages	Disadvantages
- reduction of the capital requirement based on guarantee organisations' own guarantee undertakings	capital constraints of guarantee organisations (continue to) ease	not efficient, at present, there is no capital constraint at these organisations;
- increasing the ratio of state collateral security at the guarantee organisations	further reduces the bank capital requirement of guaranteed loans; also reduces the capital requirement of guarantee organisations	not efficient, the capital advantage gained is insignificant; additional burden on the budget; moral hazard at the guarantee organisations
- easing of prudential requirements (SREP or loan loss provisioning rules)	an intervention that does not have fiscal effects (over the short run)	violates accounting principles and prudential aspects, impairs financial stability over the long term

Source: authors' own construction.

3.5. Stimulating lending using administrative means

The easing of credit supply constraints is also feasible in such a manner that

- *the regulatory authority makes lending a precondition of other support provided for banks*: this already occurred when the MNB linked participation in the 6-month swap tender to the maintenance of corporate loan holdings (see also Subchapter 3.1). The state formulated similar expectations in connection with the capital injections at FHB as well as the disbursement of preferential foreign exchange loans to MFB, FHB and OTP in early 2009. However, these means are inefficient: if they are not accompanied by sanctions, the conditions are not complied with by the beneficiaries, and if there are strict sanctions, they may conflict with the objective of the original assistance and support;
- *the state strengthens the rights of creditors with administrative tools*: theoretically, it reduces the risks of creditors, i.e. eases the constraints of risk-taking; on the other hand, however, creditors' rights may essentially be increased only at the expense of borrowers, which may reduce demand for loans. International comparisons show that in Hungary creditors' rights and legal procedures are mostly near the average (Table 2); therefore, it is possible to improve efficiency in several respects, which may have a positive impact on banks' willingness to take risks. However, as these issues cannot be considered as being within central bank competence, they are not discussed here in more detail.

Table 5: Summary of the advantages and disadvantages of the individual types of measures

	Advantages	Disadvantages
- Stimulating with administrative measures	no fiscal burden	may have other, undesirable externalities; efficiency problems

Source: authors' own construction.

Table 6: Administrative burdens from the aspect of the enforcement of creditors' rights on the basis of the World Bank Doing Business Database (2010)

Country	Creditors' rights (1 - 10)*	The average number of procedures to enforce a contract	The average time of procedures to enforce a contract (days)	Time for creditors to recover their credit** (years)
Hungary	**7**	**35**	**395**	**2.0**
Austria	7	25	397	1.1
Bulgaria	8	39	564	3.3
Czech, Rep.	6	27	611	3.2
Denmark	9	35	410	1.1
Estonia	7	36	425	3.0
Finland	7	32	375	0.9
France	7	29	331	1.9
Germany	7	30	394	1.2
Greece	3	39	819	2.0
Ireland	8	20	515	0.4
Italy	3	41	1,210	1.8
Latvia	9	27	309	3.0
Lithuania	5	30	275	1.5
Netherlands	6	26	514	1.1
Norway	7	33	280	0.9
Poland	9	38	830	3.0
Potugal	3	31	547	2.0
Romania	8	31	512	3.3
Slovakia	9	31	565	4.0
Slovenia	5	32	1,290	2.0
Spain	6	39	515	1.0
Sweden	5	30	508	2.0
Switzerland	8	31	417	3.0
UK	9	28	399	1.0
USA	**8**	**32**	**300**	**1.5**

Note: *How strong the rights of the creditor are upon the enforcement of collateral and liquidation (1: the weakest, 10: the strongest).

**The number of years during the liquidation proceeding from turning to the court until settling the last asset.

Source: World Bank, Doing Business Database 2010.

4. Summary

After the 2009 recession, the economy started to grow again in Hungary, but this turning point has not yet been followed by a rebound in corporate lending. Therefore, the risk of the phenomenon known in the literature as a creditless recovery has risen significantly. Although economic growth is possible without a rebound in corporate lending, according to relevant researches the growth is usually lower than in the case of growth supported by lending.

Since the outbreak of the crisis the MNB staff has dealt with the reasons for the contraction in corporate lending and with the possible means of promoting lending. Some of these analyses have been published; some of them – especially in connection with the means of stimulating lending – have not, and so this study has also served as a summarising work.

Earlier research showed that it was mainly the credit supply constraints of banks which played the major role in the downturn of domestic corporate lending. Credit supply is determined by two factors: banks' ability to lend (whether they can lend) and willingness to lend (whether they are willing to take

risks). Banks' ability to lend was more or less restored in Hungary following the shocks in 2008. However, there was no turnaround in willingness to lend: banks' low willingness to take risks, due to the deteriorating portfolio quality and the increasingly difficult assessment of corporate creditworthiness, tightened credit supply steadily in the last two years.

Our analysis reviewed all the theoretically applicable means – suitable for boosting either demand or supply – that allow for the stimulation of corporate lending. We examined the possibilities of the central bank, fiscal interest rate subsidy and fiscal risk-assumption as well as prudential and administrative means. Of them, at present it is basically the fiscal risk-assumption, i.e. the partial assumption of banks' credit risks by the state seems to be the most efficient method, as the underlying reason behind the fall in lending is the low willingness to take risks. The state is practically able to assume credit risk of corporations in two ways: direct lending (or lending through state-owned banks) or granting a guarantee.

Since the outbreak of the crisis both means have been used; as a result, the weights of both direct lending by state-owned banks and of corporate loans outstanding backed by guarantee organisations have increased in Hungary. However, this was not – and could not even have been – able to offset the substantial fall in commercial bank lending. In addition, the risk-takings of state-owned banks and guarantee organisations also resulted in significant losses for the budget.

Nevertheless, the financial situation of both the state-owned banks and guarantee organisations could allow them to further expand their activities. Therefore, these organisations would be able to assume corporate credit risks even in a magnitude of an additional several hundred billion forints. However, the costs of these programmes through loan losses may very soon appear in the budget. In this respect, guarantee organisations seem to be the more efficient means of stimulating corporate lending: stemming from their business model, they are able to utilise their equity with a higher leverage, and – at least based on experiences to date – as a proportion of total loans outstanding they create less costs for the state (because in their case commercial banks participate in the credit rating and risk-taking as well).

Altogether it has to be kept in mind that if economic policy intends to stimulate corporate lending in a more active manner, it inevitably results in higher fiscal costs as well.

Finally, it is also necessary to take into account that the assumption of credit risks to a greater extent by the state can only be a temporary and partial solution, as the state cannot take over the role of financial intermediaries (and this is not the task of the state either). Accordingly, a permanent recovery of lending is inconceivable without stable, predictable economic growth.

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The Budapest liquidity measure and the price impact function

Ákos Gyarmati Ágnes Lublóy Kata Váradi

During the 2007/2008 global economic crisis, market liquidity became an important issue both on the field of theoretical finance and in practice. In theory market liquidity is usually being modeled with price impact functions. In this study we show how the price impact function can be estimated from order book data. Our estimation is based on the Budapest Liquidity Measure (BLM) which is a liquidity measure that captures the transaction cost nature of liquidity.

The main outcome of this paper is a method with which market participants can easily estimate price impact functions. This is of major importance, as the price impact function can be a useful tool during a dynamic portfolio optimization process. The price impact functions can help investors in their trading decisions.

Keywords: market liquidity, price impact function, liquidity measure

1. Introduction

In this paper we show how the virtual price impact function can be estimated from the BLM database. As the BLM captures the transaction cost nature of market liquidity, the estimation of the virtual price impact function from the time series data of the BLM is feasible. On illiquid markets, the market participants have to carry out dynamic portfolio optimization with respect to size, cost and time. In order to be able to solve this optimization, they should consider the underlying stochastic process, namely the process of the transaction costs; the costs which occur because of the lack of liquidity. Through the analysis of the virtual price impact function estimated from the BLM database, the market participants can gain insight into the evolution of transaction costs and into the evolution of market liquidity. Based on this information, market participants can carry out a dynamic portfolio optimization, which contains components like optimal execution strategies or order splitting.

This study is structured as follows: in the second section the Budapest Liquidity Measure is defined and calculated. In the next section we present the concept of virtual and empirical price impact, and we also define the price impact function. In this section we also show the relation between the virtual and empirical price impact functions, and we summarize those studies that analyze the shape of the price impact functions. In the fourth section a virtual price impact function is estimated from the BLM database. In the final section we summarize our results.

2. Budapest Liquidity Measure

In this section we provide a short explanation for the Budapest Liquidity Measure (BLM), the liquidity measure that underlies our research. In this section we introduce the concept, the calculation and the interpretation of the measure is presented. A more detailed description can be found in Kutas and Végh (2005).

BLM was created in 2005 by the Budapest Stock Exchange (BSE) using the measure of the German XLM as a prototype. The idea behind the BLM was to evaluate numerically one of the most important aspects of liquidity, namely the implicit costs of transacting.

There are basically two groups of transaction costs:

- explicit costs: these are the direct cost of trading (e.g. broker fees, taxes)
- implicit costs: these are the indirect cost of trading (e.g. spreads)

BLM covers the implicit costs. The total implicit costs of a transaction consist of two parts: the bid-ask spread and the adverse price movement. The latter is the effect of the total transaction not being executed at the best level, but at worse levels. In this case the average price the market participant pays is worse than the best price.

BLM measures the implicit costs in percentage of the total transaction value. Consequently, it can only be defined for given order sizes. The standard order sizes used by the BSE are (in thousand EUR): 20, 40, 100, 200, 500.

In the following we highlight the calculation of the BLM. Let a_i be the i^{th} best ask price, b_i the i^{th} best bid price and P_{mid} the mid-price. Then denote:

- $LP = \frac{a_1 - b_1}{2P_{mid}}$, the so-called liquidity premium, the half of the bid-ask spread,
- $b(n) = \frac{\sum b_i \cdot n_i}{n}$, where $\sum n_i = n$, the weighted average bid price at which the total of n shares can be sold,
- $a(n)$, the weighted average ask price, defined similarly as $b(n)$,
- $APM_{bid}(q) = \frac{b_1 - b(n)}{P_{mid}}$, where $P_{mid}\, n = q$ the size of the position in EUR, the adverse price movement for the bid side,
- $APM_{ask}(q) = \frac{a(n) - a_1}{P_{mid}}$, the adverse price movement for the ask side, defined similarly as APM_{bid}.

With the above notation BLM is calculated as follows:

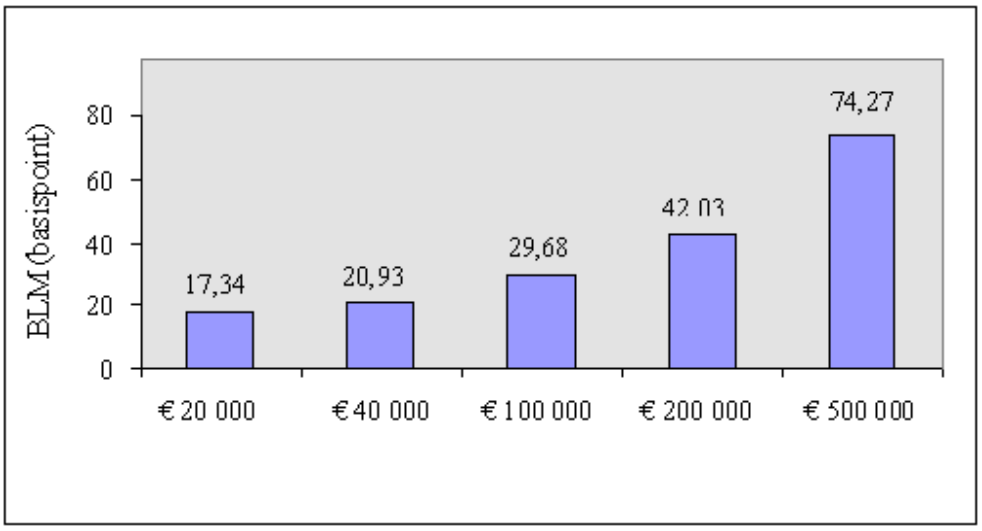
$$BLM(q) = \left(2 \cdot LP + APM_{bid}(q) + APM_{ask}(q)\right) \times 100 \qquad (1)$$

BLM represents the implicit cost of turning around a position, that is, selling and buying certain amount of stocks at the same time. For example, $BLM(500) = 60$ bps means that the buying and selling of a position of EUR 500 thousand have an implicit cost of $500{,}000 \times 60\text{bps}$ = EUR 3,000.

BLM clearly always depends on the actual state of the order book, thus the calculation can only be done at a given time point. On trading days the system of the Budapest Stock Exchange calculates the BLM for every second within the time interval of 9:02 am and 4:30 pm. The daily average BLM values are calculated as the time weighted averages of the intraday data.

Figure 1 shows the average BLM values for OTP for different order sizes for a three and a half year period:

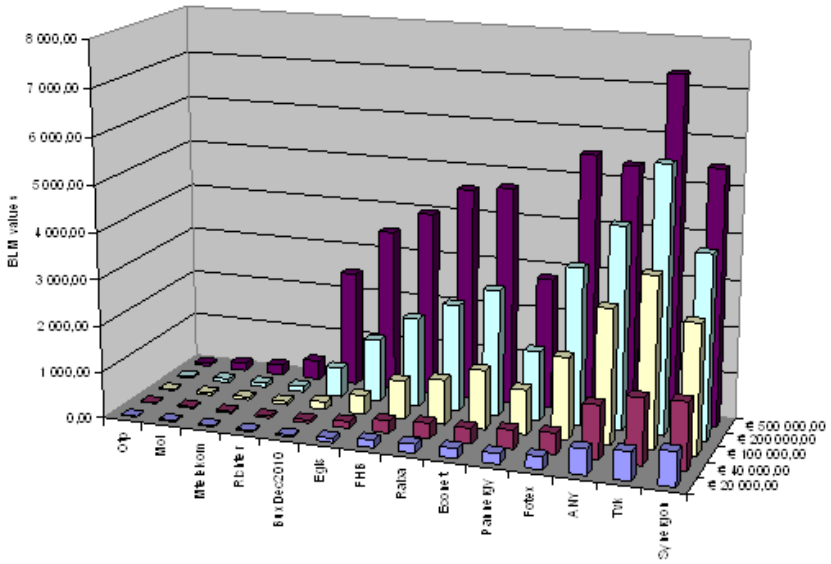
Figure 1: Average BLM values of OTP at the different order sizes (01.01.2007 – 16.07.2010)



Source: Gyarmati et al. (2010).

As the Figure 1 highlights, the larger the size of the order the larger the BLM figures are. From the perspective of the investors it is important to know which instrument has the lowest liquidity measure values, as the lower this figure is, the smaller the implicit cost incurred to the investors when they buy the stock. Figure 2 shows the average BLM figures of the shares in the BUX index and the futures BUX in 2010:

Figure 2: Average BLM values in basispoints – 2010



Source: Gyarmati et al. (2010).

Figure 2 clearly demonstrates that BLM values are monotonically increasing for each of the stocks, that is, BLM1 figures are the smallest ones, while BLM5 are the largest. Moreover, it is striking that the order of the shares based on the BLM1 values differs from the one based on other BLM levels. This phenomenon is attributed to the limit order book, namely that the shape of the limit order book can differ for each stock.

3. Virtual and Empirical Price Impact

After defining the BLM, the concept of price impact (or market impact) and price impact functions (or market impact functions) are defined. These terms might be considered as one of the most important concepts of market liquidity. The price impact can be interpreted in two different ways. On the one hand, marginal price impact shows by definition how a certain order changes the mid market price. On the other hand, the average price impact equals the difference between a certain order's average price and the mid price just before the transaction. This second definition provides crucial information for the market participants, as it measures the implicit cost of trading, that is, the transaction cost which they have to pay because of illiquid markets.

3.1. Implicit Cost

In the literature only a few studies analyze the value of the price impact of transactions, that is, the additional costs which are not paid as an explicit cost of trading. One prominent study of the field is prepared by Torre and Ferrari (1999). The authors estimated the total transaction costs of trading with the stocks of the S&P 500 index. The authors have estimated the transaction cost to be 25 cents by assuming buying and selling of 10,000 pieces of stocks with a median mid price of 400 dollars. Torre and Ferrari (1999) estimated that the composition of this 25 cent is built up as follows: execution costs equal 5 cents, while the remaining 20 cents equal the price impact. From this 20 cents, 7 cents cover the half of the bid-ask spread, while the adverse price movement is responsible for 13 cents. It is remarkable, that the adverse price movement equals the half of the total transaction cost. According to the data of ITG Global Trading Cost Review, in the last five years the average transaction cost of trading with the shares of American corporations with high capitalization was 23 basispoints (bps). From this amount 9 bps were the fees, while 12 bps were the straightforward consequence of the price impact (Ferraris, 2008).

The above examples show that the largest part of the transaction costs is caused by the price impact. The examples explicitly highlight that the price impact is indeed important and that market participant should be aware of this fact. Had they taken the price impact into account during trading, they could save notable amounts of money.

3.2. Price Impact Functions

There are two different price impact functions, the virtual and the empirical price impact functions. The virtual price impact function (vPIF) shows the relative difference of the executed price of the last contract in the order and the mid price in the function of the transaction size, that is, it gives the marginal price impact in the function of the order size (Bouchaud et al., 2008, Bouchaud, 2010a; Gabaix et al., 2003). The vPIF can also be interpreted from another aspect. In this case the vPIF shows the average price impact of a transaction. In none of the cases reflects the vPIF the real value of the price impact. Instead, it provides the experts a hypothetical value as it measures the marginal or the average price impact of an intended transaction. The name virtual price impact stems from this fact. If a market player assumes on the basis of the virtual price impact function, that the planned transaction would change the market price notably, than most probably he does not add the transaction to the order book. Instead, he splits the order into pieces and inputs the order when he considers the price impact to be smaller. Accordingly, the virtual price impact only occurs, if the market player places the market order immediately. In contrast, the empirical price impact function (ePIF) shows the actual price impact, that can be measured from real transaction data.

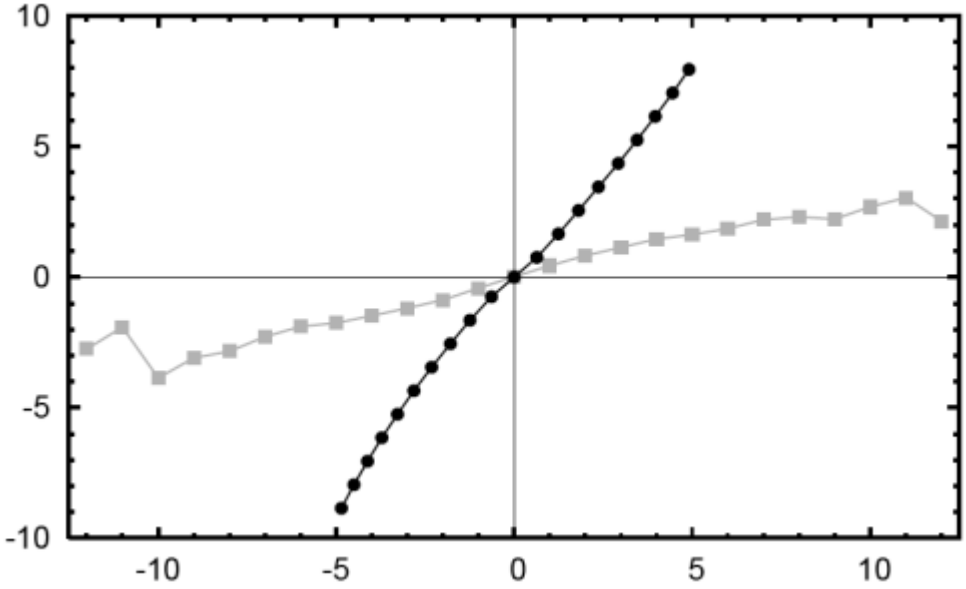
The relationship between the virtual and empirical price impact function is shown in Equation 2. The left side of the equation is the empirical price impact function ($E(r|q)$), while the right side of the equation shows the virtual price impact ($E(r)$) multiplied by the probability of the price impact ($P\ (+|q)$).

$$E(r|q) = P(+|q)E(r) \qquad (2)$$

where „r" is the change of the mid price, „q" is the total value of the order, „E" stands for the expected value, while „P" stands for probability.

Figure 3 demonstrated how the virtual and empirical price impact functions are related. On the basis of figure the vPIF can be approximated by an almost straight line, while the ePIF's shape can be approximated by a concave curve. In the empirical literature researchers have identified various shapes for the PIF-s and highlighted some reasons for the diverse shapes. This empirical research is summarized in Subsection 3.3.

Figure 3: The virtual (circle) and the empirical (square) price impact functions



Source: Weber and Rosenow (2005, pp. 360). The impact functions are calculated for the ten largest stocks of Iceland measured by turnover. (The figure is based on aggregated volume data of every 5 minutes.)

3.3. The Shape of the Price Impact Functions

The price impact of transactions depends on the order size and on the time horizon of the analysis. In Table 1 we have summarized the most important findings on limit order markets. The majority of the studies analyze the price impact by different level of aggregation. The aggregation is either carried out along time (e. g., aggregating transactions for every 5 minute), or along transactions (e.g., summing up ten consecutive transactions).

In the initial studies, the researchers plot the price impact functions without defining its functional form. The results of these studies are summarized in the first few rows of Table 1. Most of the researchers identify the price impact functions with positive slope and with a concave form. However, the studies contradict with relation to the changing of the function's slope. Part B of Table 1 shows the most important results of those studies that examine the price impact function on the level of single

transactions. All the authors make efforts to define the functional form of vPIF. The majority of the studies identify a concave function. However, on different markets the price impact function can be formalized differently.[1] In Part C part of the table results with relation to aggregated transactions are summarized. Finally, in Part D of the table the literature on the virtual price impact function is reviewed briefly.

Table 1: Empirical facts for the shape of the price impact functions

Authors	Examined stock exchange	Shape of the PIF
A) Initial studies: no formalization of the PIF		
Hasbrouck (1999)	NYSE, AMEX and regional exchanges, 62 days from 1989	Positive slope, concave function.
Hausman, Lo & MacKinlay (1992)	10 randomly chosen American stocks from 1988	Positive slope, concave function with decreasing growth.
Biais, Hillion & Spatt (1995)	Stocks of the Paris Bourse CAC 40 index	Almost a straight line, slightly concave function, which has the greatest slope on the best price levels.
Niemeyer & Sandas (1995)	30 stocks of the Stockholm Stock Exchange's OMX index	Nonlinear function, the slope of the curve at the best price levels is low.
Kempf & Korn (1999)	DAX futures, between 17 September 1993 and 15 September 1994, aggregated in every 5 minutes	Concave function that flattens on the sides: the large orders have relatively smaller price impact than the small orders.
Evans & Lyons (2002)	DM/USD & Yen/USD, daily aggregation	Strong positive relation: the net order flow explains a notable portion of the exchange rates' volatility.
B) Price impact of single trades – the PIF is being formalized		
Lillo, Farmer & Mantegna (2003)	1000 stocks of the New York Stock Exchange from the period of 1995-1998	Concave function. The slope of the function changes in the function of the order size.
Bouchaud & Potters (2002)	Stocks of the Paris Stock Exchange and from the London Stock Exchange (LSE)	Logarithmic relation.
Farmer & Lillo (2004)	Three stocks of the LSE	The price impact function can be estimated by a power-law function.
Lim & Coggins (2005)	300 stockss of the Australian Stock Exchange from the period of 2001-2004	The price impact function can be estimated by a power-law function.
Hopman (2007)	Stocks of the Paris Bourse CAC40 index; period of 4 January 1995 and 22 October 1999.	The price impact function can be estimated by a concave power-law function.

[1] The power law function is concave/convex if the exponent is smaller/greater than 1. If the exponent equals 1, than the power law function is a straight line.

Zhou (2011)	23 stocks of the Shenzen Stock Exchange in 2003	The fulfilled order's PIF can be estimated by a power-law function. With the exception of large values the partially fulfilled orders' PIF is constant.
Cont, Kukanov & Stoikov (2011)	TAQ database (NYSE, AMEX, NASDAQ), 50 randomly selected stocks	The price impact in the function of the imbalance of the bid-ask side is linear.
C) Price impact of aggregated transactions – the PIF is being formalized		
Plerou et al. (2002)	116 most traded stocks of NYSE, between 1994-1995, aggregated for 5 to 195 minutes intervals.	Authors define the price impact in the function of the number imbalance and in the function of order imbalance. In both cases the function is a concave, tangent function.
Almgren et al. (2005)	30 thousand transaction of Citigroup US, between December 2001 and June 2003.	The permanent price impact is linear. The temporary price impact is a concave power-law function.
Gabaix et al. (2003, 2006)	1000 largest stocks of the TAQ database, between 1994-1995, aggregation for 15 minutes intervals	The price impact function can be estimated by a concave, power-law function.
Hopman (2007)	Stocks of the Paris Bourse CAC40 index, 7 different aggregation level	The authors estimate the ePIF by linear regression. The daily aggregation provided the best result with R2=43,5%.
Margitai (2009)	Budapest Stock Exchange: MOL, aggregation of 5 and 20 transactions	Estimation with square-root function. With the increase of the level of aggregation, the function flattens.
Bouchaud, Farmer, Lillo & des Meurisiers (2008)	Stocks of the NYSE and LSE, Aggregation of transactions: N=1, 8, 64, 512.	As the aggregation level increases, the price impact function flattens and becomes less slope.
D) Virtual price impact		
Challet & Stinchcombe (2001)	4 stocks, 15 best bid and ask price level on Island ECN (NASDAQ)	The virtual PIF can be estimated by a convex power-law function.
Maslov & Mills (2001)	NASDAQ Level II	The virtual PIF is a convex power-law function.
Weber & Rosenow (2005)	10 most frequently traded stocks on Island ECN (NASDAQ), data from 2002	In case of the limit orders, the vPIF is a convex function.

Source: Gyarmati et al. (2012).

In sum, the findings of the researchers vary, both the ePIF and the vPIF have been formalized in several ways. Bouchaud et al. (2008) argue that these differences might be explained by the difference in markets, assets, time, and aggregation level. Bouchaud (2010a) summarizes the most important characteristics of the price impact function. By reviewing the previous literature the author concludes that the price impact function is nonlinear, concave and can be estimated by a power law distribution

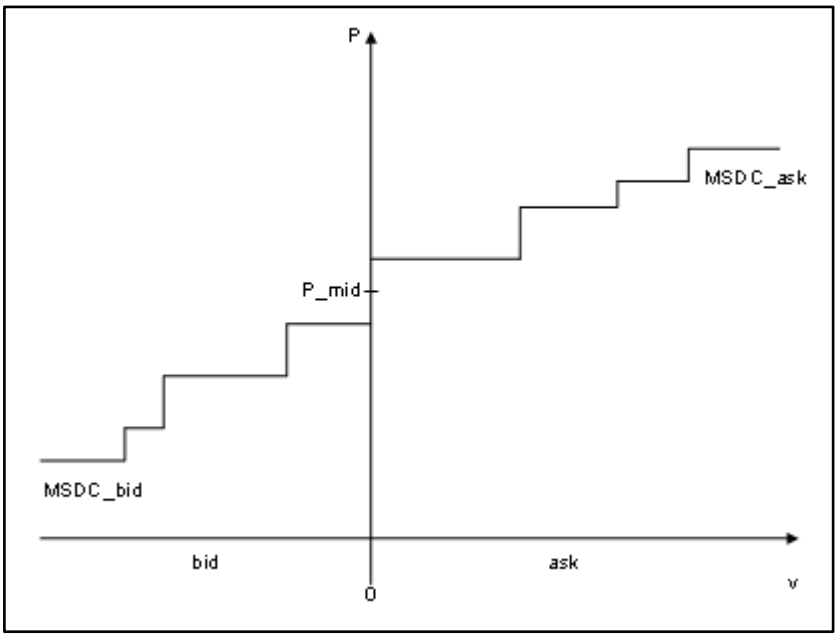
that has an exponent smaller than 1. This exponent is increasing with the increase of the aggregation level. On the level of single transactions the exponent is between 0.1 and 0.3. If the aggregation exceeds 1,000 transactions, then the exponent will be around 1. In the literature it is widely accepted, that the number of transactions has a more important role in the price impact then the order size (Bouchaud, 2010a, b). Besides, it is also a widespread view that the price impact is proportional to the bid-ask spread and to the volatility per trade (Bouchaud, 2010b).

The literature provides two explanations for the concave shape of the empirical price impact function (Bouchaud et al. 2008). The first explanation was given by Barclay and Warner (1993): the authors argue that the concave shape might be explained by the information content of the transactions. That is, if small transactions have the same information content than the large transactions, than the price impact of large transactions is not higher than that of the small transactions. The second explanation was provided by Farmer et al. (2004). The authors explain the concave shape with the concept of selective liquidity. Selective liquidity refers to the phenomenon that market participants' decision of placing an order or withholding it depends on the market liquidity. If market participants consider the liquidity to be sufficient on the market, they input a large transaction. In the opposite case they only try to execute small orders. Thus, the market participants are keen to place an order that can be fulfilled on the best price level and try to avoid deleting several levels of the limit order book.

4. Estimating the Virtual Price Impact Function on the basis of Liquidity Measures

The estimation of the virtual price impact function should rely on the determination of the Marginal Supply Demand Curve (MSDC). In this case the virtual price impact function is estimated for a given second; the measure is not based on average values of a certain time period. The MSDC shows the order book's actual status, that is, the price levels and the volume of orders on each price level. According to this the MSDC shows the price on which a transaction's last order was fulfilled, where the value of the transaction is „*v*" (volume) (Acerbi, 2010). The MSDC is shown in Figure 4:

Figure 4: The MSDC function



Source: Gyarmati et al. (2012).

In this study we interpret MSDC as the limit order book in a given second. Note that some of the previous papers interpret MSDC as the average of the values highlighted in the limit order book during a given time period. Having the MSDC function at our disposal, the total transaction cost (mid price plus implicit costs) can be determined as follows:

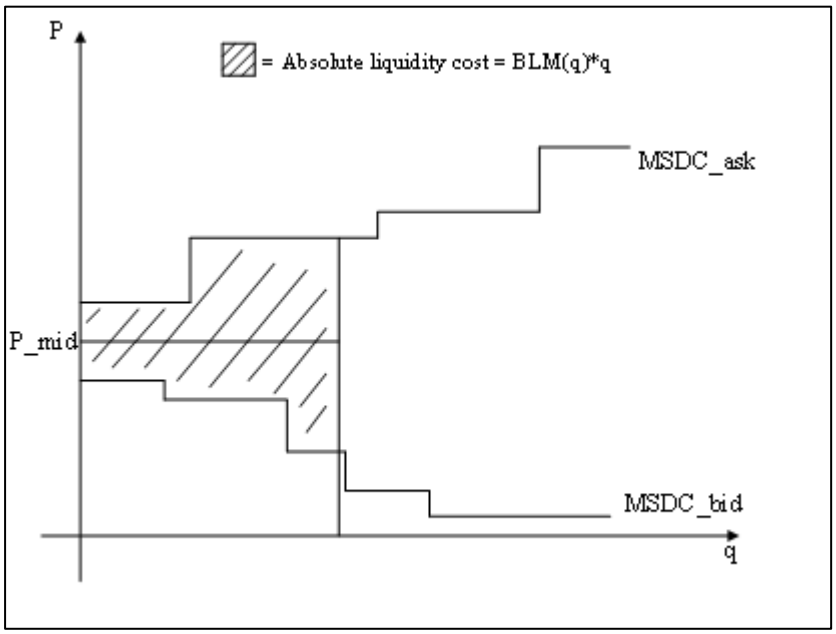
$$TotalCost(v) = \int_0^v MSDC(x)\,dx \qquad (3)$$

The majority of the market players do not have information on the entire limit order book. As a consequence, they do not have adequate information neither on the market liquidity nor can they define the MSDC function. The only information they have is what they can extract from the first few lines of the limit order book, such as the bid-ask spread, or the volume of the orders on the best price level. However, a price impact function can be estimated not only from the limit order book, but also from liquidity measures. Note that the liquidity measures are also calculated from the limit order book. In this study the Budapest Liquidity Measure (BLM) is used for calculation purposes.

The $BLM(q)$ in itself is not a price impact function, as the BLM does not inform the trader about the new mid price realized after the transaction. Instead, the BLM measures the implicit cost of trading (in basispoints) stemming from the illiquidity of the markets.

The relation between the price impact function and the $BLM(q)$ function is explained in the following paragraphs.

Figure 5: The relationship between the MSDC and the liquidity measure



Source: Gyarmati et al. (2012).

In accordance with Figure 5, the BLM can be calculated on the basis of Equation 4. In Ecuation 4 „q" stands for the total value of the transaction in euros, as the BLM shows the implicit cost in the function of the value, not the volume.

$$BLM(q) = \frac{\int_0^q MSDC\_ask(X)dx - \int_0^q MSDC\_bid(x)dx}{q} \qquad (4)$$

In order to be able to estimate the virtual price impact function with the help of the MSDC, we should estimate the SDC function first. For estimation purposes the BLM database is used.

If we assume that the daily $BLM(q)$ function can be approximated by a linear regression,[2] then the $BLM(q)$ function is as follows:

$$BLM(q) = a * q + b \tag{5}$$

The $BLM(q)$ function is estimated separately for the bid and the ask side of the limit order book. In the following equations BLM^b stands for the buy side, while BLM^a for the sell side.

$$BLM = 2 * LP + APM_{bid} + APM_{ask} \tag{6}$$

$$BLM^a = LP + APM_{ask} \tag{7}$$

$$BLM^b = LP + APM_{bid} \tag{8}$$

The linear regressions are defined as follows:

$$BLM^a(q) = a_{ask} * q + b_{ask} \tag{9}$$

$$BLM^b(q) = a_{bid} * q + b_{bid} \tag{10}$$

The estimation of the MSDC by means of the $BLM(q)$ function requires the following steps on the ask side:

$$BLM^a(q) = \frac{\int_0^q MSDC\_ask(x)dx - q * P_{mid}}{q} \rightarrow$$

$$BLM^a(q) * q = \int_0^q MSDC\_ask(x)\,dx - q * P_{mid} \rightarrow$$

$$dBLM^a(q) * q + BLM^a(q) = MSDC\_ask(q) - P_{mid} \rightarrow \tag{11}$$

$$a_{ask} * q + a_{ask} * q + b_{ask} + P_{mid} = MSDC\_ask(q) \rightarrow$$

$$\boldsymbol{2 * a_{ask} * q + b_{ask} + P_{mid} = MSDC\_ask(q)}$$

The estimation of the MSDC by means of the BLM(q) function requires the following steps on the bid side:

$$BLM^b(q) = \frac{q * P_{mid} - \int_0^q MSDC\_bid(x)dx}{q} \rightarrow$$

$$BLM^b(q) * q = q * P_{mid} - \int_0^q MSDC\_bid(x)\,dx \rightarrow$$

$$dBLM^b(q) * q + BLM^b(q) = P_{mid} - MSDC\_bid(q) \rightarrow \tag{12}$$

$$P_{mid} - (a_{bid} * q + a_{bid} * q + b_{bid}) = MSDC\_bid(q) \rightarrow$$

$$\boldsymbol{P_{mid} - (2 * a_{bid} * q + b_{bid}) = MDSC\_bid(q)}$$

[2] We have assumed the daily $BLM(q)$ function to be linear based on a movie e prepared in Matlab. The movie convinced us that $BLM(q)$ function is almost linear. We have also tested the linearity while estimating the linear regressions. We found that the value of the R^2 were always above 0.9, which means that the linear approximation is appropiate.

Finally, the virtual price impact function can be expressed in the function of $MSDC(q)$:

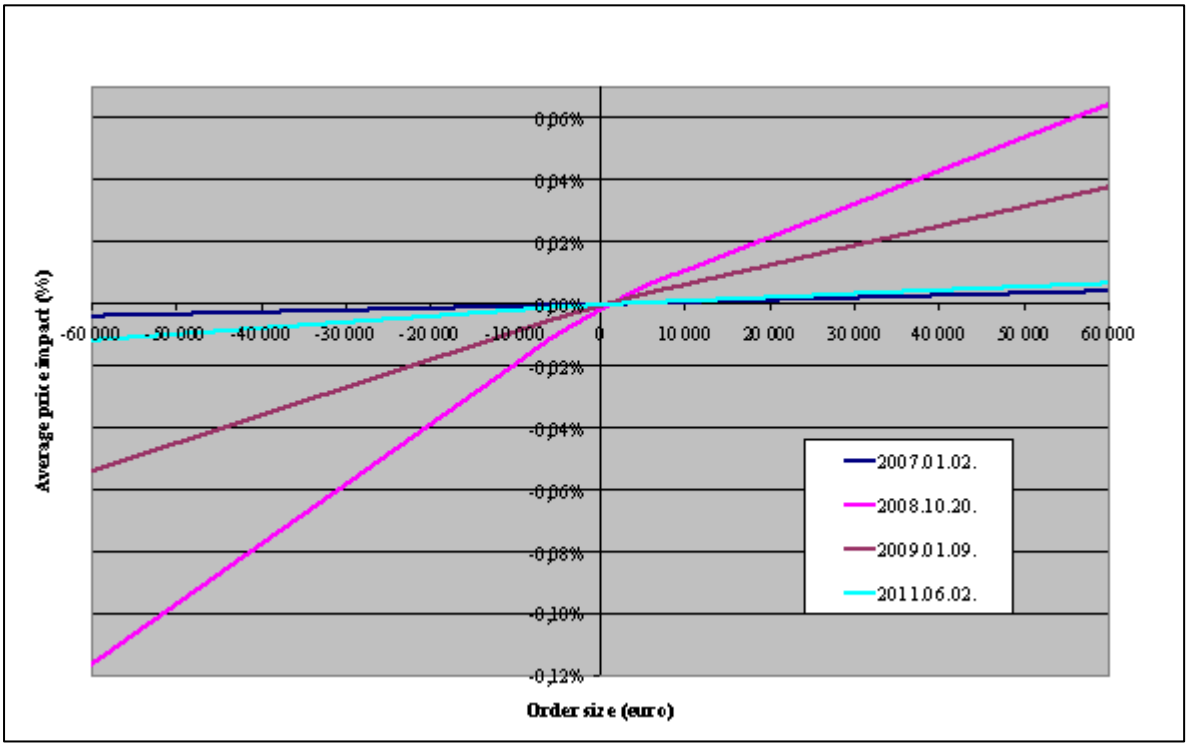
$$VPIF(q) = \frac{MSDC(q)}{P_{mid}} - 1 \qquad (13)$$

On the basis of the vPIF the empirical price impact function cannot be estimated, as the BLM database does not provide information on the probability of the occurrence of the price impacts. The ePIF can be estimated, for example, from the TAQ (*trades and quotes*) database (Margitai, 2009). Estimating the ePIF from the TAQ database is a time- and calculation consuming task. In our study our main goal was to provide the market participants a method that enables them to estimate the price impact function easily. The market participants might build their trading strategies on the price impact function estimated by the above method. As the estimation procedure is based on the BLM, it can be carried out fast and easily.

The virtual price impact function is important for the market participants from several aspects. Most importantly, they might solve a dynamic portfolio optimization exercise more professionally on the basis of the time series of the vPIF. As a result, the transactions will be executed on the market in the function of the vPIF

Figure 6 shows the estimated virtual price impact functions for OTP for both the bid and the ask side for a few trading days. The trading days have been chosen with the intention to show how the price impact behaves in calm period (1st January 2007 and 2nd June 2011) and during crisis (20th October 2008 and 9th January 2009). Figure 6 demonstrate that during a crisis the price impact function is sloper, that refers to the fact, that the transaction cost of trading is higher: Obviously, during crisis the markets are more illiquid, then during normal times.

Figure 6: Virtual price impact function

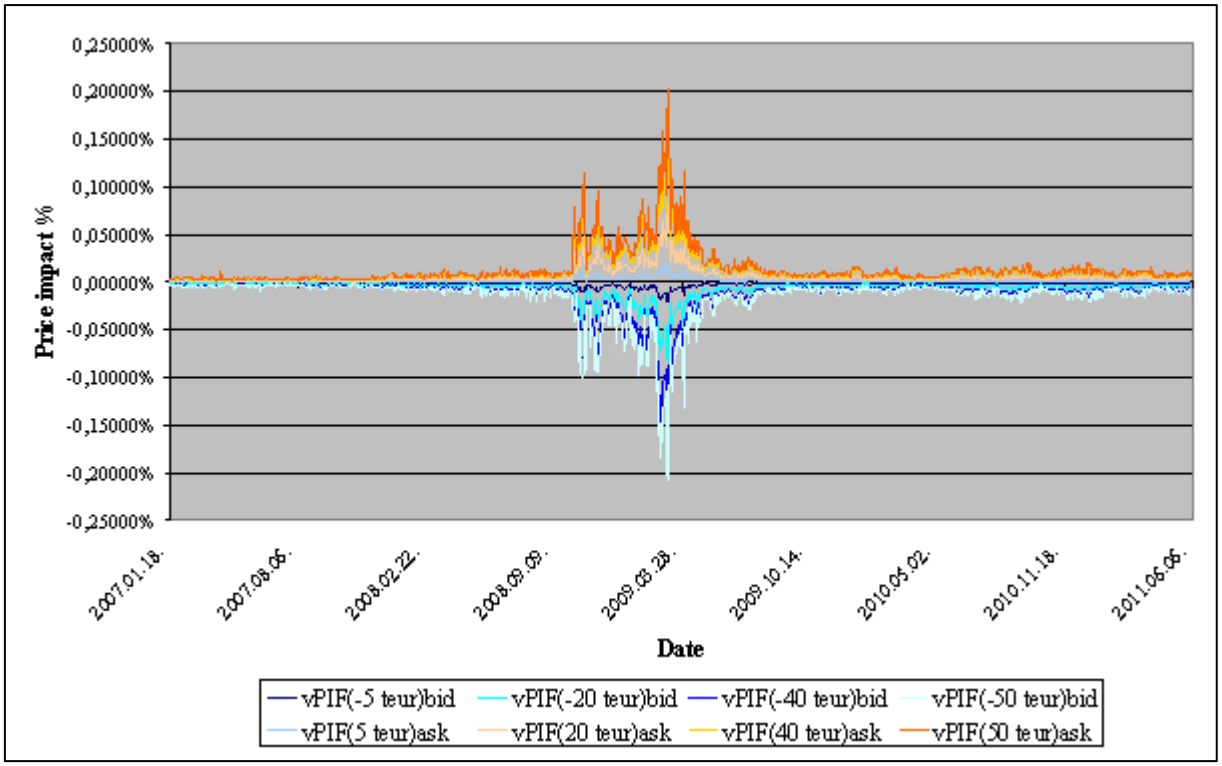


Source: Gyarmati et al. (2012).

Besides having an idea of the virtual price impact function for certain trading days, it is worth plotting the time series of the vPIF values for a few order sizes. The time series are shown on Figure 7 for the

time period of 1 January 2007 and 2 June 2011. Similarly to Figure 6, Figure 7 also demonstrates that the crisis of 2008 was coupled with higher price impacts, thus, with lower market liquidity.

Figure 7: The time series of the virtual price impact function



Source: Gyarmati et al. (2012).

5. Conclusion

In this study we have developed a method for estimating a virtual price impact function from the Budapest Liquidity Measure database. This is of major importance, as market participants might build their trading strategies on this estimation.

Further research might include the estimation of the virtual price impact function on the basis of intraday data. In this case the $BLM(q)$ function cannot be approximated by a linear regression, as the function in either concave or convex. In addition, the slope of the intraday $BLM(q)$ is changing from second to second.

In the future it would also worth to analyze the relationship between the virtual and the empirical price impact function. Besides comparing their time series data, we might get an idea whether it is essential to analyze the empirical price impact function or the analysis of the virtual price impact function in itself is also sufficient.

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CDS, bond spread and sovereign debt crisis in peripherial EU

Serpil Kahraman Akdoğu

In the last decade, many economies were marked by the severe financial crises since the Great Depression. The euro area faced considerable economic difficulties and the CDS has become the focal point of the current crisis. The euro sovereign debt crises started in Greece and later on, spread to the other peripherial European countries Spain, Portugal, Ireland, Italy and still continues. This experience address the increasing importance of „fiscal discipline" and the role of European Central Bank (ECB), if ECB with national central banks take on all responsibility in government bond markets, Euro area could be stabilized. Policy makers argue both financial and monetary policies in European Union (EU), and convergence criteria to adopting Euro. This paper aims to determine the relationship between credit default swap (CDS), bond spread and the debt ratio of the countries. In this framework, the interaction between CDS and sovereign bond spreads are examined as a measure of perceived country risk. The focus of the study is to show the role of these two variables on peripherial European countries, during the recent euro sovereign debt crisis.

Keywords: CDS, bond spread, sovereign debt crisis

1. Introduction

From the beginning of the euro introduction in January 1999 until the 2007 global financial crises, stability and convergence of bond spreads in Eurozone were considered successful. Nevertheless, following the collapse of Lehman Brothers on September 2008, the risk premium on European Monetary Union (EMU) government bonds dramatically increased and severe tensions emerged in Eurozone.

The ongoing sovereign debt crisis might have been analyzed into 3 phases. The first phase was a "financial fragility" period, began in September 2008, when the default of Lehman Brothers. This had serious impact on the financial markets in European Union (EU) countries. The second phase was marked by the "fiscal stabilization", began in April 2009. The announcement of rescue pack ages was effective to decrease the volatility in both money and financial markets. Finally, third phase is characterized by the "sovereign default risk" which has become a significant factor.

In fall 2008 sovereign spreads in Europe. The sovereign issuers began to flight to relatively liquid and safe different sovereign bond markets. The investors focus on the solvency concerns with a linkage between government debt risk and fragility in banking sector (Bolton and Olivier, 2011:7). After that time, financial analysts and international investors started to use cds secreening values instead of eurobond to asses country risk and default probabilities. Central bankers also use these values for monitoring money and financial markets. CDS reflects that the expectations and forecasts of both who sells and who own's the risk. In crises periods, CDS values may arise much more than the default probability.

In this experience of sovereign debt, the financial health of one country is heavily dependent on the financial health of other countries. Additionally, contagion risk level depends on how each EU government manage risk or how they diversify risk level with respect to default probability. The main problematic in EU sovereign debt spread is that the linkage between national central banks in

Eurozone and the European Central Bank (ECB). In European Monetary System (EMS), if solvency problems in Greece lead bondholders to fear the spread to other bond markets, then liquidity crisis risk may occur. Some economists suggest that the only way to stop this contagion effect is the role of ECB's lender of last resort in the government bond markets. As known the lender of last resort is an insurance mechanism that stabilizes the euro system. However in such an insurance mechanism, ECB guarantees liquidity to sovereign bond holders but which may arise the moral hazard problem (Grauwe, 2011). Risk is also transferred to sovereign bond holders. As can be seen in Ireland, when the state extended the guarantee to Irish bank, sovereign spread began to increase. We should also mention that according to euro convergence criteria, the limit for debt to GDP ratio is 60%. But no forecast that the debt to GDP ratio have risen in this record levels. In the long run, all the policy makers agree that financial stability and fiscal discipline in the euro area is the highest priority against spillover effect of the crisis.

This study will focus on the determinants sovereign debt crises. In this framework the role of CDS, bond spread and the default probability will be analyzed. I'll focus on peripherial EU countries, Greece, Ireland, Portugal, Spain and Italy. This paper is organized as follows, the next section gives the brief history of European sovereign debt crisis and the second section provides theoretical and empirical literature review. The third section includes data and data description. The applied data is primarily from Finance Invest and Bloomberg. The fourth and final section of this paper includes conclusion and policy suggestions.

2. Survey of the Theoretical and Empirical Literature

Most of the empirical work has focused on correlation between CDS and sovereign debt though US bond market, only a few studies are available for the Euro bond market. The recent literature on euro sovereign debt crisis has highlighted credit default swap and the stability of the domestic financial system.

The first example to examine the CDS was the study performed by Duffee (1999). Duffee (1999) applied recovery rates to corporate bonds. Another study of Duffee (1996) evaluates the relationship between Treasury yields and bond yield spread. The author used two different credit rating indexes to determine this relationship. One holds credit rating is constant over time, and the other is refreshed calculation method of credit rating over time. Author also emphasizes that there is a strong relationship between bond yields and yield spread, based on Moody's yield indexes. So that decline in bond yield spreads is small for Aaa Credit rated bonds but large for Baa credit rated bonds.

Landscoot (2004) examines that the term structure of credit default swaps on Euro bond investment between years 1998-2002 and also compare the empirical results with other studies on USD bonds. Depending on bond characteristics, they investigate the role of credit spreads volatility on both financial and macroeconomic variables. The authors found that the results are statistically significant. Credit default and volatility are positively related, credit default has significant role on volatility.

Barrios et al. (2009) focuses on government bond yield spreads in the euro area during the crises found that the relationship among foreign debt, current account deficit and sovereign risk premium. Risk perception plays a crucial role in crisis period which will lead to higher level government bond yield spreads. Thus, their results have shown that sovereign bond interest rates are affected by global financial markets. Determinants of yield spreads credit risk, change in risk aversion, and liquidity consideration.

Delatte et al. (2010) examined the nonlinear approach to determine the interaction between European sovereign credit default swaps and bonds. They applied panel smooth transition error correction model by using daily panel data covers for the crisis period from 2008 to 2010. The countries in the study were 11 European countries into two groups, "core Euro area" group includes Austria, Belgium, Finland, Denmark, Netherlands, France and the "high yield" European countries includes Greece, Italy, Ireland, Spain and Portugal. They found that threshold tension behaves differently across groups, higher threshold tension over the "high yield" group. Their results show that high volatility in CDS prices lead to panic in Eurozone so that CDS spread is the leading indicator for default risk.

Bolton and Olivier (2011) analyzed contagion effect of sovereign debt crises by using the data of 2010 European stress test. They address that the lack of fiscal integration monetary integration is the main problem of government debt. They found that banks have played a crucial role in euro sovereign debt crises spread as well as the policy response of monetary authorities.

Gomez-Puig and Sosvilla-Rivero (2011) used daily data of 10 year bond yields cover from 1990 to 2010 for peripherial EMU countries; Greece, Ireland, Portugal, Italy and Spain. They applied the Granger causality test and found strong causality relation among peripherial EMU bond yields. They also tested for cointegration by using Johansen's (1991 and 1995) approaches. Their findings suggest that contagion of the crisis through macroeconomic imbalances and banking system may be an important issue.

Santis (2012) analyzed the euro area long term government bond yields for the daily period between 1.September.2008 and 4.August.2011. He determined that three factors have played a key role in developments of sovereign spread. These factors are country specific credit risk, aggregate regional risk, and the spill over from Greece. He also implies the importance of the credit rating information.

A more recent study to determine the granger causality relationship between credit default swap and bond yield spread was performed by O'Kane (2012). He use daily data for the period 1 January 2008 to 1 September 2011 and found that CDS granger cause bond spread for Greece and Spain, but converse relationship for Italy and France and bidirectional relationship for Portugal and Ireland.

3. Developments on Euro Sovereign Debt Crisis

In the first phase of euro area sovereign debt crises, the rescue of the largest Irish banks might have played a key role in the development. However the main reasons of the euro area sovereign debt crises vary to countries. Ireland crisis differs than Greece, originated in the banking sector, then spread to the sovereign debt. In Ireland, the main reason of crisis is the increasing probability of default risk related to the domestic housing boom which was financed by foreign borrowers. During the crisis, cut and run behavior" of foreign capital may arise. In contrast, Greece, Portugal and also Italy, the main reason behind the crisis is the high fiscal deficit and public debt (Gomez-Puig and Sosvilla-Rivero, 2011, pp. 4-5).

The first signal of the crisis had been seen in summer 2009. 22 February 2009. Irish government announced that the new tight fiscal stabilization program. Later on 16 October 2009 Greek government announced that %12.7 debt to GDP ratio which was doubled than forecasts. These developments lead to sovereign debt spread dramatically risen (Santis, 2012:2). In this phase, CDS spread of peripherial European countries; Greece, Spain, Portugal, Ireland and Italy have reached record levels with the probability of default, then panic spread to euro area. Default probability ratio

was calculated 74% for Greece, 47% Portugal, 46% Ireland, 21% Spain and finally 14% for Italy (Bloomberg).

Table 1 represents GDP and debt in selected EU countries, USA and Japan for the year 2011. The correlation between foreign debt and public debt is obvious. As can be seen in the table with %166 the highest public debt to GDP ratio country is Greece and with %1093 the highest foreign debt to GDP ratio is in Ireland is 5 times more than Eurozone average. Furthermore, public debt of Greece began to increase significantly in 2006, and worsened since 2009. Looking at Greece and Italy's huge fiscal deficit, seem clear that the result of macroeconomic imbalances. However Portugal, Ireland, and Greece's GDP is only 1.4% of the total EU's GDP. But the main problem is as known, main actors in world economy hold large amount of government bonds from the financially distressed countries. Additionally, the data confirms the role of the international risk factor, US is an important driver for EU. Due to the increasing size of the bank rescue packages in UK, debt to GDP ratio has begun to sharp increase in year 2007. In Eurozone, France and Germany were considered as safe with highest credit ratings and positive economic outlook. The fiscal stability has come into focus on the default risk of high government debt.

Table 1: GDP and Debt in Selected EU and Non-EU Countries (2011)

	GDP (trillion €)	Foreign Debt (trillion €)	Foreign Debt/GDP	Foreign Debt per person (€)	Public Debt (trillion €)	Public Debt/GDP
France	1,8	4,2	235%	66.508	1,6	87%
Spain	0,7	1,9	284%	41.366	0,5	67%
Portugal	0,2	0,4	251%	38.081	0,2	106%
Italy	1,2	2,0	163%	32.875	1,5	121%
Ireland	0,2	1,7	1093%	390.969	0,2	109%
Greece	0,2	0,4	252%	38.073	0,3	166%
Germany	2,4	4,2	176%	50.659	2,0	83%
Eurozone	6,7	14,8	221%	53.202	6,2	93%
England	1,7	7,3	436%	117.580	1,4	81%
USA	10,8	10,9	101%	100%	35.156	10,8
Japan	4,1	2,0	50%	233%	15.934	9,6

Source: Finance Invest.

If we look at the debt levels in more detailed, below mentioned matrix shows the debt and/or how much money is owed by each country to other countries in the Eurozone as well as the other big world economies, Japan and USA. As we focus on the peripherial EU countries; Greece, Portugal and Ireland which are in three Eurozone countries which in deep recession, and need bail out. Greece's foreign debt is 0.2 tn euro and owes large amounts to France is heavily indebted to Eurozone. So Greek default risk could directly contagion to its creditor countries. Portugal is implementing privatization plan to reduce to debt. Foreign debt of Portugal is 0.4 tn euro and highly indebted to Spain with 65.7 bn euro. That's the reason Spain is in trouble to default probability of Portugal. Foreign debt of Spain is 1.9 tn euro and large amount of its debt is to Germany and France. The most heavily effected European country by housing boom in 2008, is Ireland. Foreign debt in Ireland is 1.7 tn euro and has very high gross domestic debt to GDP ratio %1,093 in such a small country. Additionally it has a big financial sector in overseas. Finally, Italy is the fifth peripherial country in Europe with 2 tn euro foreign debt and %163 foreign debt to GDP ratio. Italy has highly indebted to France, 309 bn euro.

Political instability is the main reason that the sovereign debt crisis very easily spread to Italy. However Italy is the relatively developed and wealthy country within other peripherial EU countries.

Table 2: 2011 Eurozone Debt Matrix (bn euro)

	Germany	UK	US	France	Spain	Portugal	Italy	Ireland	Greece	Japan
Germany		141.1	174.4	205.8	0	0	202.7	0	0	108.3
UK	379.3		578.6	209.9	316.6	0	0	113.5	0	122.7
US	414.5	834.5		440.2	170.5	0	0	0	0	835.2
France	123.5	227	202.1		0	0	37.6	0	0	79.8
Spain	131.7	74.9	49.6	112		19.7	22.3	0	0	20
Portugal	26.6	19.9	3.9	19.1	65.7		2.9	0	0	0
Italy	120	54.7	34.8	309	29.5	0		0	0	32.8
Ireland	82	104.5	39.8	23.8	0	0	0		0	15.4
Greece	15.9	9.4	6.2	41.4	0	7.5	2.8	0		0
Japan	42.5	101.8	244.8	107.7	0	0	0	0	0	
Risk	*Low*	*Low*	*Low*	*Medium*	*Medium*	*High*	*High*	*High*	*High*	*Low*

Source: http://www.bbc.co.uk/news/business-15748696

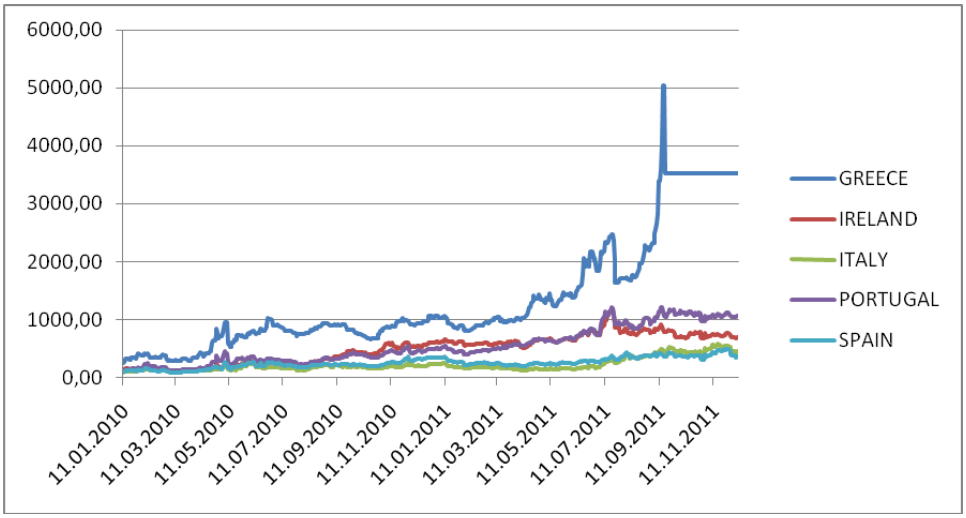
In early 2010, until March, reflecting an optimist expectation of Greek default risk, there was relatively little contagion effect. But in March, as the European recovery was weak, the crisis began to spread to other European countries. Later than EU member governments and IMF were setting up a lending mechanism for Greece and other peripherial countries. By the end of the April, the crisis reached its most actuate phase, and the Greek government requested rescue package be quickly activated on 23april 2010. May 2010, European Central Bank declared that 110 bn euro worth loan agreement. Irish government also requested an 85 bn. Euro rescue package (Bolton and Olivier, 2011, pp. 9-11). European Financial Stability Facility (EFSF), created to conditional crisis loan as a new entity to Eurozone.

4. CDS, Bond Spread and Financial Distress

The ongoing euro area debt crises show that Credit default swap (CDS) and bond spreads are the main factors to determine the default risk. CDSs were introduced in mid 1990s and became a popular after 2007. Briefly, a sovereign CDS spread is a financial instrument which entails transfer the default risk between two parties. On the other hand, Credit default swaps are a bilateral insurance contract covering a sovereign's bond or loan. Typically, CDS provides insurance for five years. CDS are not standardized financial instrument. So that, they are opaque, not regulated and not traded instrument. Suppose that a country at high default risk and probably won't be able to pay back its bond holders. In this case you may speculate to buy this bonds and pay for CDS premium cause you know that if the county would not default, you will get the total face value of bonds. Conversely, suppose that a country is in good financial markets now you may have chance to offer insurance whose opinion is opposite yours. In this case you may speculate that the country would default to sell the insurance but not pay back. Thus we may say that "*speculation*" is the key word on CDS. The main problematic in CDS screening values is intertemporal changes in default probability cause the credit rating indexes are held constant the measure.

In this non-technical analysis daily close prices for both CDS and bond spreads data is used for the period 11 January 2010 to 08 December 2011. All the data are collected from Finance Invest. There are no missing data for CDS but several missing exist in bond spread data for Italy and Spain. The below mentioned figure 1 shows the credit default swap and the following figure.2 represents sovereign bond yield spreads for peripherial countries Greece, Ireland, Italy, Portugal and Spain. The dates in figures mark some of the key developments in European sovereign debt crisis. These are, on 8.December.2009 with negative economic outlook by Fitch, Greek credit rating downgrade to BBB+, on 28.November.2010 Irish rescue package, and 6.April.2011 Portugal call for bailout EU (Metiu, 2011, pp. 24).

Figure 1: Credit Default Swap (CDS) in Peripherial EU



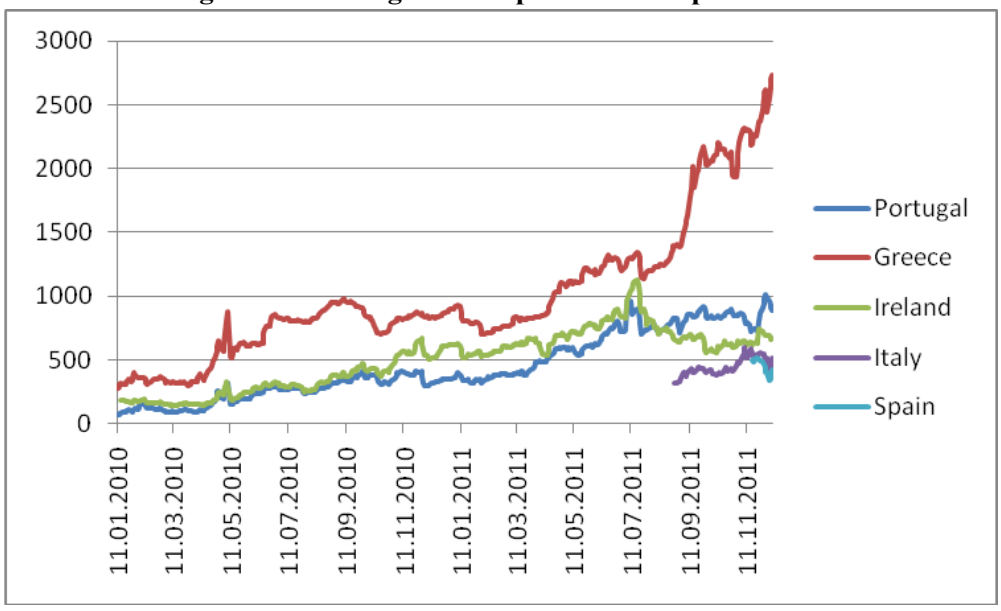
Source: Finance Invest.

Bond spread is another important indicator of economic volatility of a country that reflects to measure of perceived risk and have risen since mid-2007. Bond spread is the difference between the two bond yields with differing credit ratings. In crisis periods, investors beware risk, bond spread rising. During the crises period, changes in the creditworthiness is reflected in the bond spread of the country which can be seen in below mentioned figure 2. The sovereign debt crises makes the spreads increase, due to the uncertainty about Bear Stearns spreads have clearly risen. and the above mentioned level of bond spreads were seen only in emerging markets before. As seen in the figure, developments in July 2011 were remarkable with the Greek, Irish and Portugal spreads. They have all received bailout loans, but it worsened the condition.

I should also mention that many of the economists do not address uncontrolled higher demand for German Sovereign bonds, cause in the crisis period German bond seems to have benefited and safe. By the way German government guarantee to German sovereign bonds, carrying the default probability.

The economic agents have argued that solvency risk for those countries deteriorated and lead credit ratings downgrades. Three credit rating agencies; Standart and Poor (S&P), Moody's Investors Service (Moody's) and Fitch might have important that reported credit rating reviews and deteriorated sovereign solvency risk. Table indicates that Greek sovereign bonds lead to strong impact of default probability since the default of Lehman Brothers, but less noticeable in Italy and Spain. The spreads of Italy and Spain reaching the highest level since adopting the euro area and still increasing, but Ireland and Portugal seems getting better. However, this is not enough to calm the markets and reduce to spillover effect to outside of Europe.

Figure 2: Sovereign Bond Spreads in Peripherial EU



Source: Finance Invest.

5. Conclusion and Policy Suggestions

Doubtless the euro sovereign debt crisis is the biggest test for euro has ever faced. Credit default swap (CDS) and sovereign bond spreads have played a key role in the developments of the crisis. The ongoing crises show that investors had more interest to negotiate CDS on high yield EU countries. Empirical studies show that during the financial and economic turbulences, there is high correlation between these two derivatives. In Eurozone peripherial countries Italy, Portugal, Spain, Greece and Ireland are probably the best examples for this transmission mechanism. The recent econometric debate on this issue is mainly focus on the causal relationship between CDS and bond which is important for policy makers. Most of the studies agree that bond spreads are mainly driven by the credit default swaps.

On the other hand, European Council (EC) have failed to isolate the contagion of the Greek sovereign debt crisis to the Eurozone. The European Central Bank officials are considering that there are several informal plan to support Greece's rescue plan. One plan suggest that ECB could sell its Greek bonds to European Financial Stability Facility (EFSF) but EFSF is disagree and against this suggestion. Under another informal plan is euro area central banks could get losses on Greek bonds to buying in its asset purchase program until Greek bond payment due to March 2012. EU commission agreed on the European Stability Mechanism (ESM) fund in March.2011 but it may come into effect in 2013.

At the end, Euro sovereign debt crises has highlighted fiscal discipline and macroeconomic instability that lead to rising sovereign spreads to other countries through integrated financial and banking system can be a major issue. There is one clear lesson from the euro sovereign debt crisis, a consequence of monetary integration; governments cannot be indifferent default probability of a euro area government debt.

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Role and function(ing) of the new European financial supervisory architecture

Brigitta Kreisz

The financial and economic crisis has created real and serious risks to the financial stability. Experience of the financial crisis has exposed important failures in financial supervision, both in particular cases and in relation to the financial system as a whole.

In accordance with the proposals presented by the report of the high level group of experts, chaired by Mr Jacques de Larosière (2009), the objective of establishing a more efficient, integrated and sustainable European system of supervision became essential.

Considering the fact, that financial integration and stability are mutually reinforcing; maintaining a stable and reliable financial system is an absolute prerequisite to preserving trust and coherence in the internal market, and hence to preserve and improve the conditions for the establishment of a fully integrated and functioning internal market in the field of financial services. Moreover, deeper and more integrated financial markets offer better opportunities for financing and risk diversification, and thus help to improve the capacity of the economies to absorb shocks.

The aim of this article is to examine the question whether the establishment of the European Financial Supervision System could address the weaknesses highlighted by the crisis and provide a system that is in line with the objective of a stable and single EU financial market for financial services – linking up national supervisors into a strong and complex Community network.

Keywords: European financial system, European financial supervisory architecture, financial stability, strong and complex Community network

Introduction

By writing this article my aim was to examine the question whether the newly constructed under the name European System of Financial Supervision (ESFS)[1] since the 1st of January 2011 existing construction could have a worthwhile significance and role in the further run of the integration process of the European Union.

Athough much of the scientific literature – including the manifestations of the different new published working documents of the European decision making[2] - endeavours special importance in connection with the future of the European Union to the established supervisory architecture – linking national

[1] The ESFS shall comprise the following: the European Systemic Risk Board (ESRB), for the purposes of the tasks as specified in Regulation (EU) No 1092/2010., European Insurance and Occupational Pensions Authority established by Regulation (EU) No 1094/2010 of the European Parliament and of the Council, European Securities and Markets Authority established by Regulation (EU) No 1095/2010 of the European Parliament and of the Council, the Joint Committee of the European Supervisory Authorities, the competent or supervisory authorities in the Member States as specified in the Union acts.

[2] See: Conclusions of the European Council http://www.consilium.europa.eu/uedocs/cms_data/docs/, ECB (2011a), Larosière (2009), The General Report on the Activities of the European Union — 2008 was adopted by the European Commission on 9 February 2009 under reference number SEC(2008) 1000 final, ISBN 978-92-79-10137-3 http://europa.eu/generalreport/pdf/rg2008_hu.pdf

supervisors within a strong Union network – it could be declared, that the referred opinions either fail to seize conceptual importance of the founded system or interpret it differently.

The fact that the final provisions of the Regulations[3] establishing the architecture they themselves oblige the European Commission to revise the need of an European-level organised frame of supervisory authorities strengthens mistrusts in connection with the future importance and effectiveness of the existing architecture.

In order to answer the question whether the reformed supervisory system as a factor within the European institutional framework is able to contribute to the merit to the further development of the future of the European Union, two questions have to be clarified. First, the adjudication of whether the affect which is required by the activity of this organisational system exceeds the concrete scope of actions, which are settled in the regulations in connection with the legal status of the institutions. To put this question the other way around: Could the integrated European System of Financial Supervision be incorporated into a wider and more conceptual context. Secondly, if the integrated supervisory role would posses a conceptual importance, how could be this latter approached?

Searching for the importance of the European financial supervisory system, we are looking for the answer, whether the existence of an integrative supervisory order is able to support the realization of the tasks which are necessary to maintain and develop the economic union. As it was highlighted by the financial and economic crisis which broke out in 2008, the latter question could not remain unanswered anymore. By now, it is getting to be clear that in case of the lack of an adequte financial architecture, organised at the European level, is unconceivable in the future to the maintainance and development of an integrated European financial system.

For this reason I am going to introduce the construction and function of the ESFS in two dimensions.

In the first part of my essay I am going to present a surway about the general institutional framework of the ESFS construction, especially emphasizing those factors which are very decisive from the perspective of the European economic governance. Paying accentuated attention on making clear the relationship between the supervisory activity and the economic governance. Within this circle I am going to take stock of the characteristics of the European financial system, the scope of regulation of the European framework of economic administration. Finally I am going to highlight the interactions between the administration of the financial system and the functioning and efficiency of the economy.

In the second part of my work I am goint to turn on the internal structure of the ESFS. Within this circle besides the general organisational matters I am going to try grouping the different tasks of the new European micro-prudential authorities, supplemented with the evaluation of the special powers and the means which are in relationship with the effective execution of these tasks.

In consideration of the editing limitations, the history of the development of the model of the financial supervision architecture, the aims of the crisis and some relevant and detailed information about the reform of the regulation of international financial system would merely be tackled by this article.

[3] Article 20 of the REGULATION (EU) No 1092/2010 and Article 81 of the Regulation (EU) No 1093/2010 Regulation (EU) No 1094/2010, Regulation (EU) No 1095/2010 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

1. External public framework: linkage between the European financial system and the ESFS

The fact that in a form of the ESFS integrated supervisory role has a conceptual importance regarding the functioning of the economic union assumes the acknowledgement of the truth of the presumption that the construction of the ESFS is a little system in the system of the – broadly interpreted – bigger, complex European and global financial system.

Considering the fact that this article does not intend to discuss the process of the regulation reform of the international financial system in detail, hereafter the explanation would be extended solely to the European financial system. In the interest of these it is necessary to make clear shortly the meaning of the term European financial system by highlighting the legal and institutional frame of it.

1.1. Meaning of the term: European financial system

Outlining the **European financial system** it could be done in many ways and perspectives. Depending on the approache, the outlines and dimensions of the system could be also different. This article aims to interpret the European financial system within the system of financial law.

According to the above mentioned analytical point of view, the European financial system could be interpreted as the object of the European financial law. By this point it should be pointed out, that the European attribute is a very incertain category considering the fact that the degree and sort of certain parts of the financial system are different.[4] Nevertheless – although in plural dimension and with restrictions – the financial law is the most appropriate to seize the **intersections of the multi-level financial system** where the necessity and significance of the integrated supervisory structure could be illustrated. It is because financial law is a sum of legal material, which is responsible for to get regulated and operated the working **of financial relationships**.

Considering those characteristics of the financial relationships that they are able to create multi-dimensional and complex connections the financial law should be suitable to frame and describe the functioning of such complex systems and mark out the intersections in their regulation.

Since the transformation of the public legal order resulted that the financial relations became more complex, expanded the functions of financial law. To follow this expansion it became necessary to approach financial law in a broader - namely European – perspective. It is a very interesting question whether financial law is able to and if so what kind of means are to be used to regulate the above mentioned expanded relationships? These questions could be raised differently.

First, could the development of (financial) law keep up with the complicated development of financial relationships? Second, is it possible at all to establish such complex public (regime) framework which is able and entitled to rule?

In order to dissolve the raised questions it is necesssary to pay attention to the dual nature of financial law especially considering within that circle the following correspondence: although financial law is more than the sum of norms of public law, without the existence of an effective public legal order those private legal relationships which are significat components of the integrated financial system are not able to fulfil their interest in a long-run and at the same time they are either not able to warrant the balanced functioning of financial relations.

[4] For this reason this approach serves only as an illustration, it could not be perfect.

As it was pointed out by the crisis, it is the challenge of the future to establish those public legal structures – over the member states level - through which it is possible to operated financial relationships effectively i.e. long-run and stable.

Since the explosion of the crisis in 2008 it became a significant point in the agenda of the European administration to strengthen the structures of European economic governance. Within this framework the institutions of the European Union are working on building out of – new and/or renewed - public legal administrative structures and mechanisms which are vitally based on the Member States level but – considering its essence - exceed it, and in virtue of their comprehensive and coherent nature are able to insure sustainable operation of the financial relationships.

The establishment of the ESFS was the first step of this comprehensive reform procedure which was carried out in the light of the recognition that to get operated the cross-border financial relationships instead of coordinating them with the tools of private law special public institutional and regulative framework is needed with effective rights and mechanisms deriving from the empowerment of a special public regime.

1.2. Division and internal intersection of the European financial system

In general the European financial system could be divided into fiscal and monetary sphere. The concept of Economic and Monetary Union (EMU) is based on this system either. It is also well known that regarding its European nature - there is an asymmetric relationship between the two pillars of that „creation".

Although both pillars of the construction possess essentially European character, the monetary pillar is based fundamentally on an at the European level centralised institutional and regulative structure contrarily the economic pillar which consists of a mixture of decentralised but coordinated and centralised parts.

In connection with the EMU it is necessary to emphasize that the construction and regulation of the structure of the EMU is imperfect because it is in the lack of the system of special authorities which should be able to govern that interaction which exist between the internal market of financial services and the financial system as a whole (Vörös, 2011).

Before the establishing of the integrated financial construction at the European level the financial supervisory structure was defective in the European Union because the previous system did not give enough significance in its institutional order to the divided, cross-border character of the European financial system and to its institutionalization in accordance with its intersections.

Considering the before mentioned the characterization of the financial system could not only be done by separation of the different spheres, but in accordance with the intersections of the financial system. Intersection means at this respect those connecting spheres through which the different bigger parts of the financia system are connected.

Following this cross-sectoral interpretation, fundamental sections of the financial system are the followings: public finance sector, sector of financial control and sections of the different financial institutions and financial markets. Among the big parts of the financial system further systems are functioning which consist of multi-level and interconnected elements.

The financial system as a whole is working in three big circles these are the circle of public finances, undertakings and banks. With the development of the financial relationships the latter category split up to the bank, insurance and financial services sectors (Simon, 2007).

1.3. Multi-dimensional character of the coordinative role of the ESF

The coordinative role of the ESFS is multi-dimensional. Within these dimensions the first and most important is the „middle dimension" where the newly established micro-prudential European Supervisory Athorities (ESAs) could realize a paralell supervision beside the Member Statets. Through this supervision method complex subsections of the cross-boarder and cross-sectoral banking system could be more effectively performed according to the common-european interests.

Before the establishment of the ESFS the Lámfalussy Committees were authorised to enforce the common-european interests. Since these Committees operated within the structure of the European Committee they did not have enough rights to intervene directly into concrete financial relationships.

Due to the specialities of the institutional structure and lack of powers they did not have the rights and means either to transmit effectively information to the monetary system.

With the establishment of the ESFS new institutional structures were established in the form of mediation channels of knowledge and information which institutionalized cross-sectoral connections of the European financial system.

By possessing relevant and systemic information later functioning stage of the ESFS would be possible to get created and operated an integrated public legal order in the field of European financial law which would be able to build on the information reached by the operation of the authorities and to rule the interests of those private legal relationships which could cause risk for the stability of the whole European system. Examining the special intersections from the perspective of the fiscal sphere it could be determined, that the supervisory order seems to be competent to mediate information about the macro-prudential operation to the sphere of public finance.

Identifying systemic risks the factors causing macroeconomic imbalaces could be strained off and prevent. In the interest of the latter institutionalized information and mediation channels are essential to create and mainatain the connections between the motery and fiscal spehere of the complex European financial system.

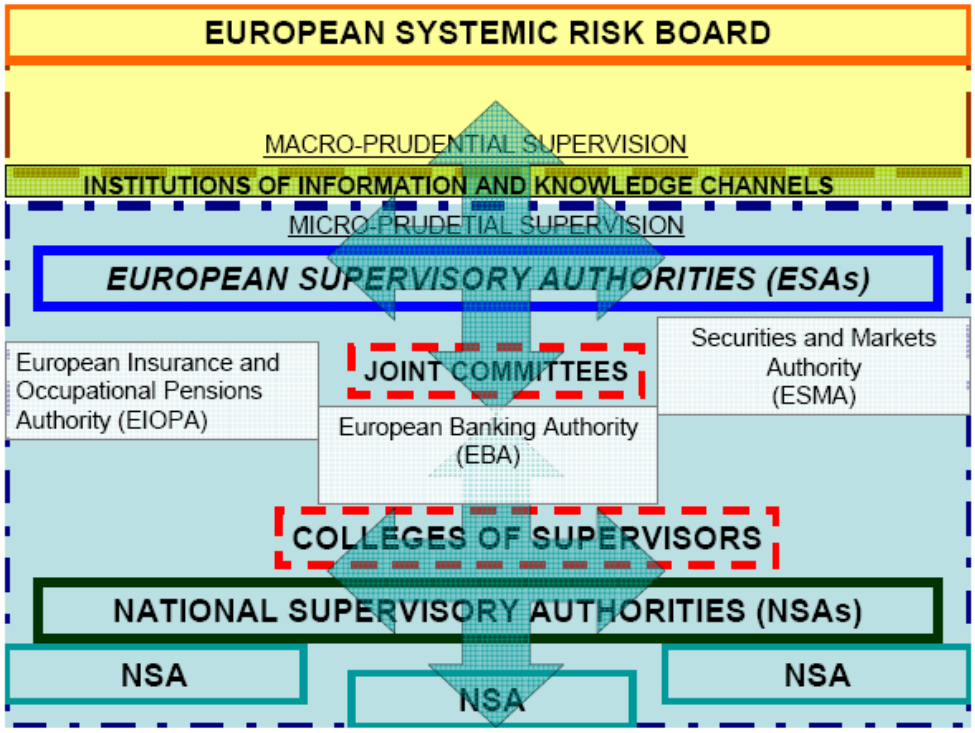
It is worthwhile to stress by this point that one of the elements of the sixth pack established in its regulation in connection with the prevention of macroeconomic imbalances the institution of **in-depth review** which prescribes that the Commission shall take into account any warnings or recommendations from the European Systemic Risk Board.[5]

The second dimension which should be tackled is the institution of **Joint Committee** which gives institutional solution for the challenges stemming from the complexity of the financial institutions in order to avoid the problems deriving from the sectoral supervisory approach. It is clear that at this level the systemic aspect has a different meaning in comparison to the macro-prudential level discussed before. According to this interpretation intersections should interpret as sectoral intersections.

[5] Regulation (EU) No 1176/2011 of the European Parliament and of the Council of 16 November 2011 on the prevention and correction of macroeconomic imbalances, OJ L 306, 23.11.2011, pp. 25–32.

Further intersections – which would be only tackled by this article - of the ESFS are the intersections the institutional connections among the European institutions, the intersections among the different interests, and the intersections which are in connection with the international organisations.

Figure 1: European System of Financial Supervision



Source: author's own

2. The internal organisation of the ESFS: reformed and institutionalized construction

Although the ESFS is a very complex system which is organised at multi-levels in fact it consist of bodies which operated previously – though not under the same name – in the institutional order of the EU. The predecessors of the authorities which are currently responsible for the micro-prudential supervision (ESAs) were the Lámfalussy Committees.[6] These 3L3 Commitees functioned within the structure of the European Commission and possessed limited rights and powers. Since there was no broader organised supervisory frame around them their functioning could not be so fully valid and coordinated as the current regulation grants it for the new authorities.

While it is a novelty of the reforms that the construction of the ESFS were expanded with the function of macro-prudential supervision. Macro-prudential supervision introduced a new institutional frame as well which created a **new level within the system** of the European financial supervision. Previously, similar function was fulfilled by the ESCB's Banking Supervision Committee (ECB, 2011b).

Within the ESFS architecture the European Systemic Risk Board (ESRB) is responsible for the macro-prudential supervision. „Given the wide scope and the sensitivity of its missions, the ESRB is not be conceived as a body with legal personality and binding powers but rather as a body drawing its

[6] Committee of European Banking Supervisors (CEBS), Committee of European Securities Regulators (CESR), and Committee of European Insurance and Occupational Pension Supervisors (CEIOPS).

legitimacy from its reputation for independent judgements, high quality analysis and sharpness in its conclusions."[7]

The ESRB would play an important role in the development of the European macro-prudential perspective to address the problem of fragmented individual risk analysis at national level. It shall enhance the effectiveness of early warning mechanisms by improving the interaction between micro- and macro-prudential analysis. It shall allow for risk assessments to be translated into action by the relevant authorities.

Paying attention to the composition of the ESRB - beside its tasks – it could be determined that it is a body within which the main institutions and bodies of the European Union and Member States are organisatory integrated. In the function of the ESRB take part the representatives of the European Commission, the European Central Bank, the National Banks of the Member States, the European Supervisory Athorities, the President of the Economic and Financial Committee and the delegated representatives of the national supervisory authorities.

We could draw the conclusion that the novelty of the architecture derives from its complex nature. It is a system-based supervisory structure which is integrated at different levels and different ways. The predecessors of its institutions in the organisational structure of the EU could be found previously as well, however since the systemic functioning of these institutions were not granted they were unable to carry out the supervision of the European financial markets in organised and coordinated manner. According to my point of views institutional shortcomings of the supervisory system were repaired by the establishment of the new architecture.

The ESFS brought not only institutional changes but **functional as well**. To illustrate the latter it is important to stress that the reform of the system of supervision expanded the powers of the European Supervisory Authorities which strengthened the binding legal effect of their means.

It is also necessary to outline that the Authorities could exercise their power not only in the field of execution, they are entitled to supplement the European rule making as well. The reform of the comitology[8] which was carried out by the Lisbon Treaty gave the permission to grant power directly for the ESAs to draft regulatory and implementing technical standards. It should be emphasized that by now the Authorities are entitled to adopt the abovementioned standards in the form of a draft instead of recommendation which results that the Commission is to be bound in a certain amount by the professional opinions of the Authorities.

Draft technical standards should be adopted by the Authority on the basis of qualified majority of the members of the Boards of Supervisors. The Union legal order requires the Commission to subsequently endorse these draft standards in the form of regulations or decisions so as to give those direct legal effects. The Commission may decide restricted – i.e. in very exceptional cases, and only for reasons of Union interest - to endorse the standards in part, or with amendments, or not at all.

Although there is no room for this article to deal in details with the process through which the non-legislative acts are adopted, it is worth to raise the attention for the fact that the new schemes of the

[7] COM(2009) 499 final Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Community macro prudential oversight of the financial system and establishing a European Systemic Risk Board

[8] The term "comitology" is a shorthand for the way the Commission executes the implementing powers conferred on it by the EU legislator, with the assistance of committees of representatives from the EU countries (European Commission, 2012).

Lisbon Treaty made it possible to involve stronger professional support of the supervisory authorities into the rule-making process. That is the reason why this reform is known as Lisbonisation of the rule-making process.[9]

3. Functioning of the ESFS: powers, specific legal institutions and their aims

The tasks of the ESAs and the related institutions and decision powers could be categorized into the following significant groups: tasks related to the cross-border institutions, tasks related to specific EU-wide institutions, tasks related to the area of regulation, tasks related to to supervisory standards and practices, tasks related to macro-prudential issues, tasks related to area of crisis management, tasks related to international matters.[10] In connection with the first tasks we should outline a very important supervisory power namely the exercise of the **right to mediation with binding settlements**, which would be an effective way to settle disagreements between national supervisory authorities.

Indirect aim of this mechanism is to ensure that relevant national supervisory authorities take due account of the interests of other Member States within colleges of supervisors. In the earlier stage of the crisis it occured in many cases that the national supervisory authorities took due account of their own interests neglecting the interests of the other member states and the interest of European Union as a whole.

Direct aim of the mechanism is to **assist in reaching a common approach** or settle the matter if a supervisory authority disagrees on the procedure or content of an action or inaction by another supervisory authority where the relevant legislation requires cooperation, coordination or joint decision making. The binding legal effect of the settlement of the ESA is one of the examples for stronger powers of the new Authorities. By this institution it would be possible in the future to prevent the situations when a Member State fails to perform its existing obligation by refusing cooperation or remaining solely inactive.

The central institution of this procedure is **the conciliation** during which the ESA tries to reach an agreement among the national supervisory authorities with the involvement of the Authority as necessary in a mediatory capacity. In case of the lack of agreement in exeptional cases, after a phase of conciliation, the ESAs may settle the matter through a decision. However, this would clearly be exceptional as in most cases the respective national authorities should be able to come to an agreement in the preceding conciliation procedure. In case of non-compliance by a supervisory authority with the previous decision, the Authority may also decide to **adopt decisions** addressed to financial institutions specifying their obligations in respect of Union law which is **directly applicable to financial institutions**.

In connection with the enforcement of Union law it is necessary to discuss the systems of new mechanisms which are responsible to ensure the **consistent application of European rules**. Additional aim of this mechanism is to support the work of the European Commission.

[9] „Lisbonisation of the rulemaking process" presentation of Jonathan Overett Somnier on 6 December 2010, Paris

[10] High-level Group on Financial Supervision in the EU. Brussels, 2009.4. 52-54, http://ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf

Table 1: Settlement of disagreements between competent authorities in cross-border situations

Request	Basis	Procedure	Competence of the ESAs	Means
NSA ESA (on its own initiative)	Disagrees about the procedure or content of an action or inaction of a competent authority of another Member State	Conciliation	Mediator	Agreement
ESA	NSAs are unable to reach an agreement + exceptional situation	Settlement of disagreements	Settlement competence	Legally binding-decision

Source: author's own

Previously in case of divergence of Union legislation the problem could be solved only through the the initiation of **infringement proceedings** by the Commission against Member States. As the infringement proceedings are very complicated and take a long time, this mechanism itself was not effective enough to prevent the cases when the financial institutions benefited from the advantages of the **regulatory arbitrage**. In many cases however the regulatory arbitrage resulted the underming of financial stability.

Table 2: Powers to ensure the consistent application of Union Law

Request	Basis	Procedure	Addressee of action	Means of action
▪ one or more competent NSA(s), the European Parliament, ▪ the Council, ▪ the Commission ▪ the Banking Stakeholder Group, ▪ ESA on its own initiative	Non-application of Union Law Non-compliance with Union Law	Investigation of the ESA	NSA(s)	Recommendation for action
European Commission	Non-compliance with Recommendation	Investigation of the European Commission	NSA(s)	Formal opinion
ESA	Non-compliance with formal opinion Maintaining or restoring neutral conditions of competition in the market Ensuring the orderly functioning and integrity of the financial system		Financial Institutions	Directly applicable individual decision

Source: author's own

Therefore it become an essantial interest in connection with the improvement of financial stability to prevent the regulatory arbitrage and the ensurance of the consistant application of Union law. In order to grant the realization of this need the ESAs have a general power to address behaviour by national supervisory authorities who are considered to be diverging from the existing Union legislation. The

ESAs, on their own initiative or upon request from one or more national supervisors or from the Commission, would **investigate** these cases and, where necessary, adopt a recommendation for action addressed to the supervisory authority. In the exceptional situation that the supervisory authority does not comply with the latter, the ESAs may as a last resort adopt a decision addressed to financial institutions in respect to Union law which is directly applicable to them.

Closing words: Position in the question of effectivity

Judging the effectivity of the functioning of the ESFS it would be early to consider that the ESAs started their work a year before. However it should be emphasized by this point that only in a coherent organisational order functioning system could warrant in the future the all around (effective) supervision of the integrated European financial system.

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Debt trap - monetary indicators of Hungary's indebtedness

Judit Sági

In the circumstances of the financial crisis, sovereign debts have increased with an effect on foreign exchange rates (NEERs), CDS spreads, market liquidity and debt exposures in foreign currencies. This study aims to examine the features of the Hungarian sovereign debt by analysing the possible interactions among the variables and also the monetary aspects of debt financing. At the end, some conclusions are drawn from a monetary perspective.

Keywords: nominal FX rate, real effective FX rate, CDS

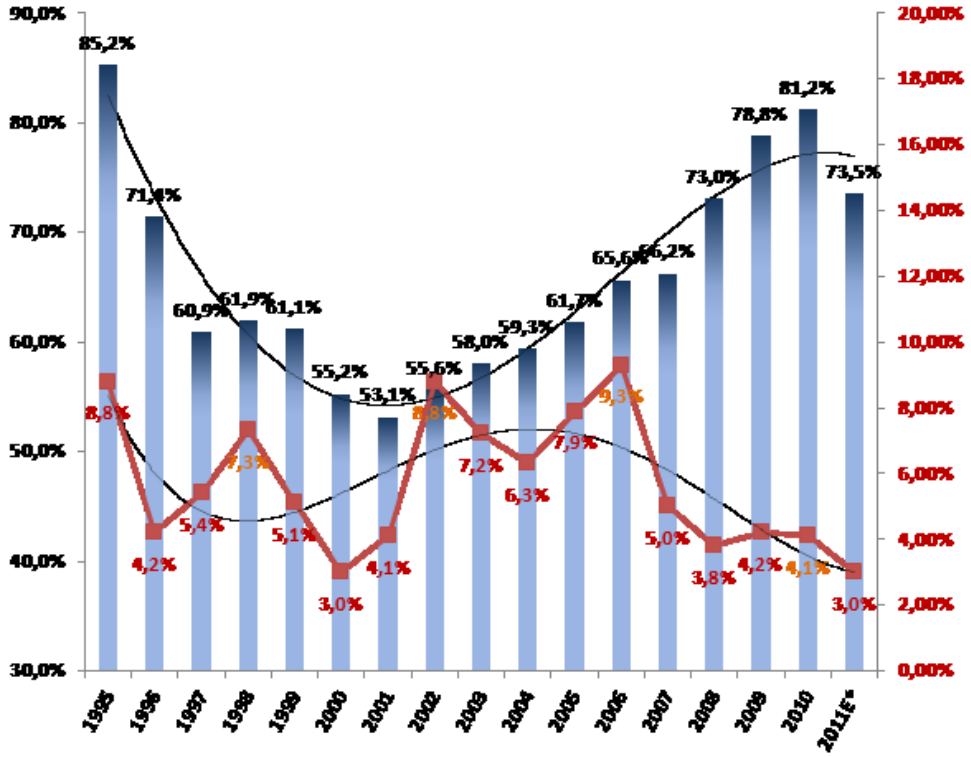
1. Introduction

While acknowledging the growing magnitude of credit derivatives and credit default swap contracts worldwide, and being aware of the current debates that are held around the riskiness of these instruments, this study sets out to explore the significance of CDSs in pricing sovereign debt exposures bearing in mind that under a CDS agreement the probability of a credit default is considerable.

In the next section this paper explores the characteristics of credit default swaps, foreign exchange rate behaviour and the concept of equilibrium exchanges rates. I assume that the change in the CDS spreads may influence the movements in the FX rates. By estimating an empirical model, data on Hungarian sovereign CDS spreads, and nominal HUF/EUR and HUF/CHF rates for the period 2010-2011 are to be considered. One prediction from this model that has not previously been tested empirically is that there should be a robust and significant positive relation between the growth of CDS spreads and the level of the nominal FX rates.

In the circumstances of the financial crisis – in many countries and likewise in Hungary (see Figure 1) – sovereign debt exposures and debt to GDP ratios increased, with severe consequences for the market (financing) conditions. In case of Hungary, (re)financing of the sovereign debt has been carried by foreign denominations up to nearly 50% which takes high foreign exchange rate risk, and by a redemption profile of debt maturing within 5 years at approximately 75% which encompasses high refinancing risk.

Figure 1: Hungary's sovereign debt exposure and fiscal deficit (in % of GDP)



Source: own from Hungarian Government Debt Management Agency (www.akk.hu)

Due to the increased financial risk as perceived by foreign and domestic institutional investors, the credit rating for Hungary's long term sovereign debt has been downgraded to Ba1 with a negative outlook by Moody's, and to BB+ also with negative outlook by Standard & Poor's. In parallel, the financial markets' view on the Hungarian State's creditworthiness has worsened, which was reflected by increased risk premiums and credit default swap rates.

2. The significance of Credit Default Swap agreements

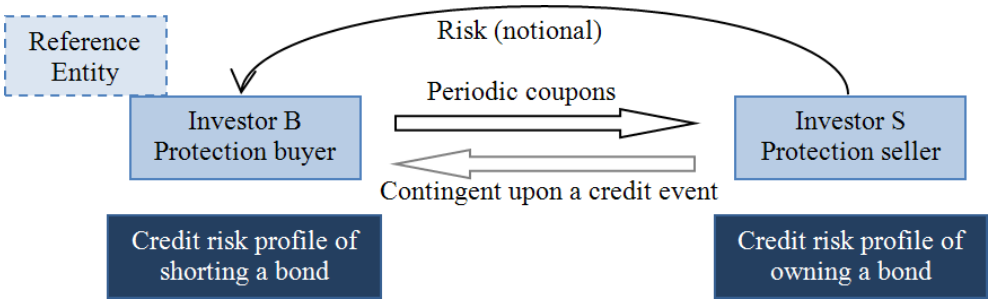
Credit derivatives, in general, are applicable for investors to express a positive or negative credit view on a single entity, and thus to take or reduce credit exposure, preferably on bonds or loans of a sovereign or corporate entity. Within credit derivatives, single-name credit default swaps represent a major share, accounting for approximately one third of the contracted volumes (Barrett and Ewan, 2006).

By definition, a credit default swap (hereafter referred as: "CDS") is "an agreement in which one party buys protection against losses occurring due to a credit event of a reference entity up to the maturity date of the swap. The protection buyer pays a periodic fee for this protection up to the maturity date, unless a credit event triggers the contingent payment. If such trigger happens, the buyer of protection only needs to pay the accrued fee up to the day of the credit event (standard credit default swap), and deliver an obligation of the reference credit in exchange for the protection payout" (Beinstein and Scott, 2006).

By explanation, the CDS is an agreement between two parties to exchange the credit risk of an issuer (reference entity). The buyer of the credit default swap is said to buy protection, against losses in the event of bankruptcy, the issuer failing to pay outstanding debt obligations, or in some CDS contracts, a

restructuring of a bond or loan (called as credit event). The seller of the credit default swap is said to sell protection in the case of a credit event.

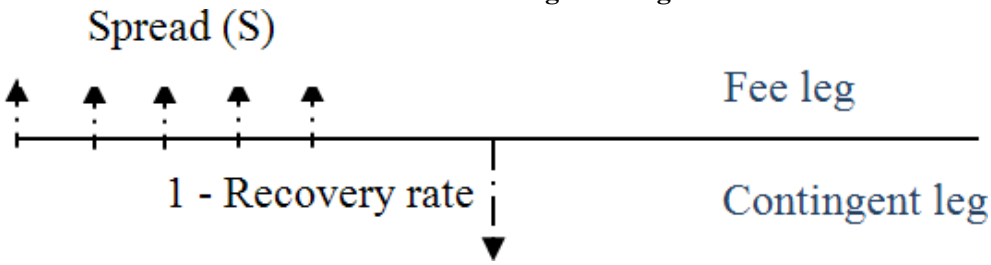
Figure 1: Single name CDS



Source: author's own construction

Under a CDS contract, the buyer usually pays a periodic fee and profits if the reference entity has a credit event, or if the credit worsens while the swap is outstanding. At the same time, the seller collects the periodic fee and profits if the credit of the reference entity remains stable or improves while the swap is outstanding. According to the ISDA standards, CDS market price is quoted in basis points (bp) paid annually, and is a definite measure of the reference entity's credit risk (the higher the spread the greater the credit risk is). The CDS market price, also called as CDS spread or fixed rate, should be multiplied by the notional amount of the swap in order to calculate the regular payment due under the swap agreement.

Exhibit 1: Cash flows according to a single name CDS



The value of a single name CDS can be interpreted as a scenario analysis where the credit survives or defaults. The protection seller (long risk) hopes the credit survives, and discounts the expected annual payments by the probability of this scenario (called the fee leg). The protection buyer (short risk) hopes the credit defaults, and discounts the expected contingent payment (Notional Value less Recovery Rate) by the probability of this scenario (called the contingent leg).

Since one type of CDS may be contracted for different maturities, each maturity represents a spread that ensures the present value of the expected spread payments (Fee Leg) equals the present value of the payment on default (Contingent Leg). The formula for a Par CDS contract (with a Notional of 1) can be written as:

$$S_n \sum_{i=1}^{n} \Delta_i Ps_i DF_i + Accrual\ on\ Default = (1 - R) \sum_{i=1}^{n} (Ps_{i-1} - Ps_i) DF_i \qquad (1)$$

Where,

- S_n = Spread for protection to period n
- Δ_i = Length of time period i in years
- Ps_i = Probability of Survival to time i
- DF_i = Risk-free Discount Factor to time i
- R = Recovery Rate on default

Without further details of the calculation methods, it is a crucial point that the valuation theory of the CDS contracts certainly implies that default under the CDS is interpreted as

- the Cumulative Probability of Default (the probability of there having been any default up to a particular period),
- the Conditional Probabilities of Default or Hazard Rates (the probability of there being a default in a given period, conditional on there not having been a default up to that period), and also as
- Unconditional Default Probabilities (the probability of there being a default in a particular period as seen at the current time).

From our perspective this means that the credit event (default) under the CDS agreement is contingent upon the time period considered in the agreement, and also the expectations of the market agents. For longer periods, the probability of defaulting increases over time; however, the investors' behaviour attains more dependence on previous market trades. I applied the ISDA standard model for interpreting CDS spreads.[1]

3. Foreign exchange rate behaviour

Foreign exchange rate behaviour and the concept of equilibrium exchanges rates are frequently cited in academic discussions, and the uncovered interest rate parity or the fundamental equilibrium exchange rates are the most common ones.

Table 1: Factors of exchange rate alignments to an estimated equilibrium

	Theoretical assumptions	Relevant time horizon	Statistical assumptions	Dependent variable
Uncovered Interest Rate Parity	The expected change in the FX rate determined by interest differentials	Short run	Stationarity (of change)	Expected change in the real or nominal
Purchasing Power Parity	Constant equilibrium FX rate	Long run	Stationary	Real or nominal
Balassa-Samuelson	PPP for tradable goods. Productivity differentials between traded and non-traded goods	Long run	Non-stationary	Real
Monetary and Portfolio-balance Models	PPP in the long run plus demand for money	Short run	Non-stationary	Nominal
Capital Enhanced Equilibrium Exchange Rates	PPP plus nominal UIRP without risk premia	Short run (forecast)	Stationary, with emphasis on speed of convergence	Nominal

[1] http://www.cdsmodel.com/cdsmodel/; http://www.cdsmodel.com/cdsmodel/fee-computations.page

Intermediate Term Model-based Equilibrium Exchange Rates	Nominal UIRP including risk premia plus expected future movements in real exchange rates determined by fundamentals	Short run (forecast)	None	Future change in the nominal
Behavioural Equilibrium Exchange Rates	Real UIRP with risk premia and/or expected future movements in real exchange rates deter-mined by fundamentals	Short run (also forecast)	Non-stationary	Real
Fundamental Equilibrium Exchange Rates	Real FX rate compatible with both internal and external balance	Medium run	Non-stationary	Real-effective
Natural Real Exchange Rates	As with FEERs, but with the assumption of portfolio balance (so domestic real interest rate is equal to the world rate)	Long run	Non-stationary	Real
Structural Vector Auto Regression	Real FX rate affected by supply and demand shocks in the long run	Short (and long) run	As with theoretical	Change in the real

Source: own from (Driver – Westaway, 2004)

This paper is related to earlier empirical work of Moreno and Villar (2010) that explains foreign exchange market disruptions, as indicated by large and persistent deviation from uncovered interest parity, and measured by high sovereign default risk. Other recent empirical works (Rezessy, 2010) have documented a significant affirmation of the risk premium-extended UIRP for Hungary, especially as compared to other Central- and Eastern European countries.

Following the outburst of the financial crisis, it is crucial to know whether an observed change in the value of exchange rate is justified by perceived shocks to the macroeconomic environment. In our point of view, different scenarios may apply to small and open - and specifically, emerging – economies. Notwithstanding, the liquidity measures of sovereign debt markets may differ in these economies.

Concerning the HUF exchange rate, a question could be raised as to whether the increased sovereign indebtedness has been followed by the depreciation trend of the domestic currency. In order to answer accurately, nominal and real effective exchange rates are to be considered. The nominal effective exchange rate (NEER) is an index of some weighted average of bilateral exchange rates; in this sense, the domestic currency is valued in relation to a basket of foreign currencies. The real effective exchange rate (REER) is the NEER adjusted by some measure of relative prices or costs.

According to the methodology of the Bank for International Settlements (BIS), the International Monetary Fund (IMF), the OECD and some leading central banks throughout the world[2], the NEER is calculated as the geometric weighted average of a basket of bilateral exchange rates, and the REER is the NEER adjusted with the corresponding relative consumer prices.

[2] e.g. the European Central Bank (ECB), the Bank of England (BoE) and the Federal Reserve Board (FED)

The BIS formula is the following:

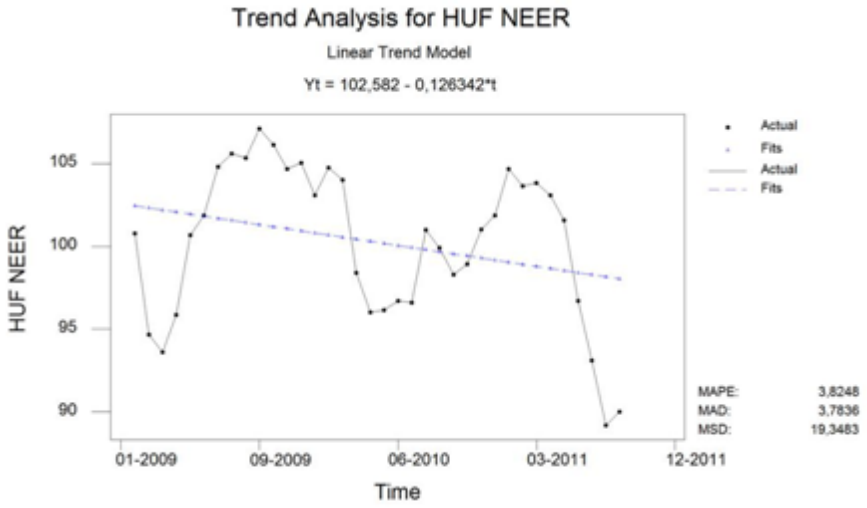
$$E_{it} = \prod_{j=1}^{n} \left(\frac{P_{it} S_{ijt}}{P_{jt}^{*}} \right)^{\omega_{ij}} \quad (2)$$

whereas:

- P_i is the domestic rate of inflation;
- P_j is the inflation rate of the other country;
- S_{ij} is the spot FX rate;
- ω_{ij}, the weighting scheme for the basket is trade-based and captures direct and third market competition within export and import markets.

Since there is a comprehensive database of the EER indices and the associated weights, released mid-month through the BIS website on a regular (monthly) basis, both the nominal and the real exchange trends can be analyzed. Throughout the period 2009-2011, the HUF in nominal terms has depreciated compared to its 2010 year's base (as illustrated by Figures 2).

Figure 2: Nominal Effective Exchange Rates for the HUF in 2009-2011



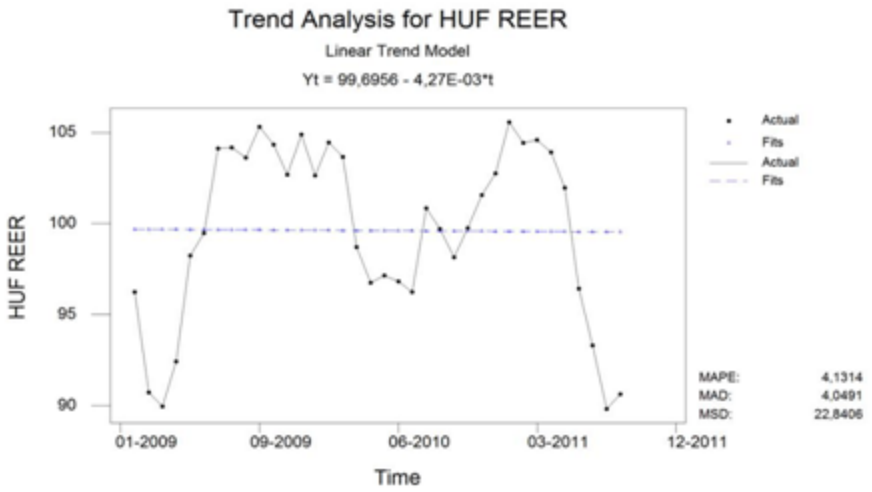
Source: own from BIS data

Despite the fact that the HUF in real terms has kept constant (Figures 3), there has been fluctuations around its 2010 year's reference value. In the beginning of 2009 and since the second half of 2011 the REER for the HUF has depreciated significantly, presumably referring to a correction through FX rate alignment to the debt markets' risk awareness.

An alternative way to estimate FX rate alignments is variance analysis for the 5-years CDS spreads and the HUF REERs. In order to do so, I defined the predictor as the value of the CDS spread at the beginning of the eligible month (to be referred in Figure 4 as 'CDS (-1)). The response of the HUF REERs is strong, 77.1%. The regression equation is:

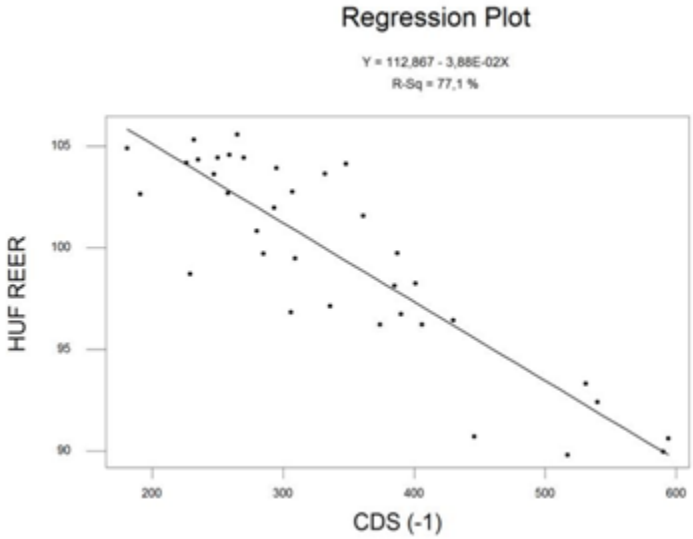
$$HUF\ REER = 113 - 0{,}0388\ CDS\ (-1) \quad (3)$$

Figure 3: Real Effective Exchange Rates for the HUF in 2009-2011



Source: own from BIS data

Figure 4: Real Effective Exchange Rates for the HUF in 2009-2011



Source: own from BIS data

These results imply that REERs' divergences from the reference value – with a high degree of certainty – can be explained by changes in the sovereign CDS spreads. However, in attempting to interpret movements in the foreign exchange rate it is necessary to examine the variables in more detailed subsequent periods of time.

4. FX rate alignments to Credit Default Swaps

In line with the formulas commonly applied in various exchange rate models (Driver and Westaway, 2004), foreign exchange rates can be characterised in terms of a dynamic reduced-form relationship which relates it to a set of explanatory variables as follows:

$$e_t = \beta^t Z_t + \Theta^t T_t + \epsilon_t \qquad (4)$$

whereas

- e_t refers to the exchange rate in time t,
- Z is a vector of economic fundamentals that are expected to influence the exchange rate in the medium to long term,
- T is a vector of transitory factors (including current and lagged variables as well as dynamic effects from the fundamentals, Z) which has an impact on exchange rate in the short term,
- ϵ_t is a random disturbance and β and Θ are vectors of coefficients.[3]

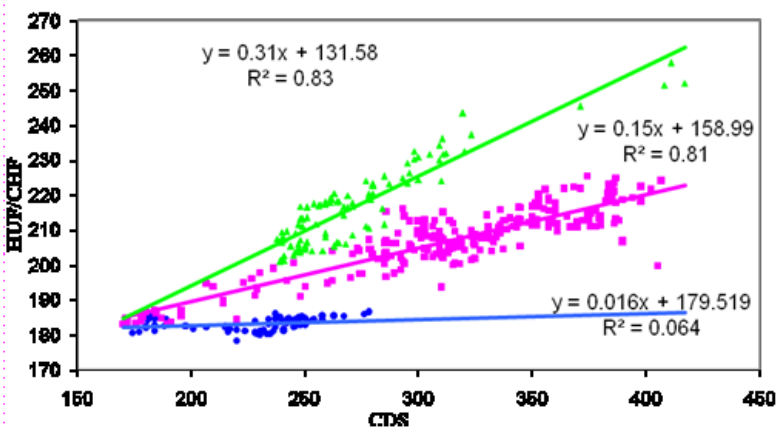
Within this framework, I have supposed that the CDS spread behaves as a T vector, influencing the HUF (to the CHF, and to the EUR) exchange rates within the occurrence of the financial crisis. I extended the period of investigation to recent times, beginning with December 2009 and ending in August 2011. The eligible period can be split into three distinct phases (see Figure 5), such as follows:

> In a beginning neutral period from December 2009 until March 2010, the HUF-CHF exchange rate stayed within an ascending triangle. The trend regression was: 1 CHF=179,5 HUF+[0,016*CDS] HUF. During this time, there has been nearly the same foreign exchange rate level (182.3 – 183.9), even though the Hungarian CDS spreads have increased sharply (175 – 275). The elasticity of the HUF-CHF rate at CDS 275 was extremely low, 1-179.5/(179.5+0.016*CDS = 2%.
>
> During an intermediate period since March 2010 until March 2011, the trend regression was: 1 CHF=159.0 HUF+[0.15*CDS] HUF, which implies a much higher correlation between the two variables. Throughout this period, the CDS spreads varied from 170 to 400. At the different levels of CDS spreads of 175, 275, and 400, the HUF-CHF rates climbed to 185.3, 200.3, and 219.0 respectively. The elasticity of the HUF-CHF rate at CDS 275 was 1-159.0/(159.0+0.15*CDS = 21%.
>
> Under the latest period from March 2011 until August 2011, there has been a strong correlation between the HUF-CHF exchange rate and the Hungarian CDS, with a trend regression to be expressed as: 1 CHF=131.6 HUF+[0.31*CDS] HUF. The CDS spreads fluctuated in abroad range of 220-420. At the different levels of CDS spreads of 275 and 400, the HUF-CHF rates reached 216.8 and 255.6, respectively. The elasticity of the HUF-CHF rate (written by an equation of 1-131.6/(131.6+0.31*CDS) at CDS 275 was 39%, at CDS 420 was 50%.
> More specifically, when we track the origin of the trend regression plots, we conclude with an equilibrium of CDS 170 and HUF-CHF 185.

I asked the question if what could explain the shift from the starting to the intermediate period (in March 2010), and then from the intermediate to the final one (in March 2011), whereby the elasticity of the HUF-CHF rates has resulted in an increased trend path. What surprised me is that these shifts occurred at the same time as the REER for the HUF was at its periodical maximum. Even though there are uncertainties about what drives the relation of the lowest CDS level to FX rate trend elasticity, it is clear that it has happened when the HUF became over appreciated compared to its periodical fundamental value.

[3] [5], page 8.

Figure 5: HUF/CHF exchange rates
(since 08/Dec/2009 in blue; 30/Mar/2010 in purple; 21/Mar/2011 in green)



Source: own from DBR data

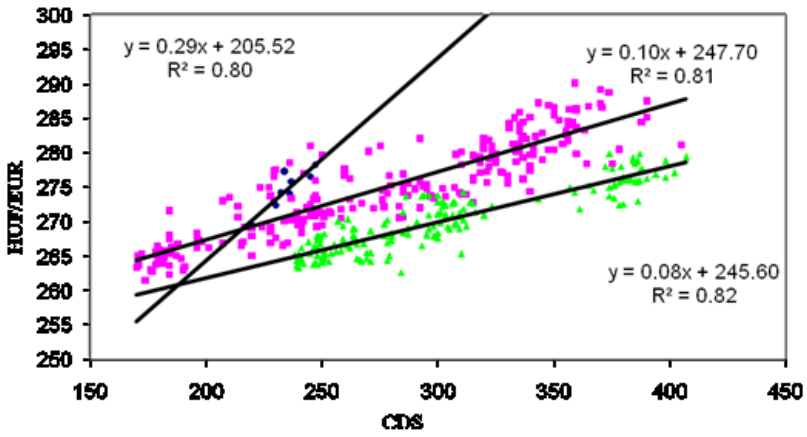
I then examined the HUF-EUR relation, whether different periods can be distinguished in similar patterns, in line with weakening or strengthening elasticity. In case the EUR depreciated in relation to the CHF, trend elasticity of HUF-EUR is expected to be weakening. In details (see also Figure 6):

The beginning period – represented by the upper line in the chart – was relatively short, it lasted from December 08, 2008 until December 21, 2008. The trend regression was: 1EUR = 205.5 HUF + [0.29*CDS] HUF. The elasticity of the HUF-EUR rate at CDS 250 was 1-205.5 HUF + 0.29*CDS = 26%.

The intermediate period – depicted by the middle line in the chart – lasted for about a year, from December 21, 2009 until December 03, 2010. The trend regression for the period was: 1EUR = 247.7 + HUF + [0.10*CDS]. The trend elasticity of the HUF-EUR rate at CDS 250 was only 9%.

The latest period – being represented by the lower line in the chart – from December 03, 2010 until August 12, 2011 was quite similar to the previous (intermediate) period, with a trend regression of: 1EUR = 245.6 + HUF + [0.08*CDS]. The trend elasticity of the HUF-EUR rate at CDS 250 was only 7.5%.

Figure 6: HUF/EUR exchange rates
(since 08/Dec/2009 in blue; 21/Dec/2009 in purple; 03/Dec/2010 in green)



Source: own from DBR data

Despite the partial mismatch of the HUF-CHF and HUF-EUR periods, it can be stated that with equal CDS, the EUR in the course of devaluation has been driven to a lower elasticity trend.

5. Conclusions

This study, considering the increasing Hungarian sovereign indebtedness, set the hypothesis that in the course of the financial crisis the difference in CDS spreads – similar to the difference in inflation rates or in interest rates – may have a significant effect on the foreign exchange rate. The results imply that REERs' divergences from the reference value – with a high degree of certainty – can be explained by changes in the sovereign CDS spreads.

This paper has also explored the characteristics of the 5-years CDS spreads of the Hungarian sovereign debt, in the period between December 2009 and August 2011. The empirical relationship between foreign exchange rates and CDS spreads is close within shorter periods of time, then with a change after some months or a year. These results imply that within the course of an eligible trend (regardless the appreciating or depreciating nature of the trend), the higher CDS spreads contributed to devaluating HUF rates. During the eligible period the CHF has appreciated to the EUR, with strengthening elasticities for the CHF rates, and weakening elasticities for the EUR rates.

One prediction from the analysis, that has not been tested empirically, is that in case of other non-eurozone EU member states there could be similar (or similar to different) relations between the CHF rates and the CDS spreads, or the EUR rates and the CDS spreads.

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Risks of the indebtedness of the Hungarian local government sector from a financial stability point of view*

Ákos Aczél Dániel Homolya

Our paper explores the risks that arise due to indebtedness of Hungarian local governments. Our analysis relies on interviews conducted with the heads of the local government business branches of the credit institutions most important in terms of local government financing and on the related data collections, as well as on data from the Hungarian State Treasury regarding the financial management of local governments and on data from banks. Until 2011, the repayment of the bonds issued during the bond issue boom experienced in the local government sector in 2007–2008 started only in the case of one third of the bonds outstanding. However, by the end of 2011 year nearly 50 per cent and by end-2013 90 per cent of total bonds outstanding will reach the principal repayment period. Due to the considerable foreign exchange exposure of total loans and bonds outstanding (60 per cent, 80 per cent of which is Swiss franc exposure) as well as to the declining revenues of local governments and the deteriorating economic prospects, it is doubtful that local governments will be able to repay their debts to the banking sector in line with the original maturities. Therefore local governments financing may have an effect not only on the fiscal position but on the whole financial system as well. Nevertheless, our partial analysis establishes that the risks related to the debt of the local government sector have increased significantly in the recent period, but these risks could be managed by the banks. The comprehensive restructuring of the local government system as a whole and a further changing of debt settlement procedures by the government may influence the financial position of the local government system. In parallel with the regrouping of tasks, transferring of a portion of local government debt (primarily from the county local governments) to the central budget may result in a clear picture.

Keywords: banks, state and local borrowing, bankruptcy, liquidation

1. Indebtedness of local governments

During 2007 and 2008, the liabilities of local governments to the banking sector approximately doubled. Total exposures of the banking sector have not increased significantly since end-2008. At end-June 2011, total bonds and total loans outstanding amounted to HUF 550 billion and HUF 450 billion, respectively. Foreign exchange exposure within the accumulated total loans and bonds outstanding is significant (approximately 60%), 80% of which is Swiss franc denominated. The increase in total liabilities outstanding was driven by both supply and demand factors. It is important to emphasise that this article basically analyses the risks to the banking sector; therefore, it does not contain a thorough examination of the risks that surround other debts (mainly commercial credit) of local governments, which have been fluctuating around HUF 200 billion for years.

* Earlier version of this paper was published in October 2011 Issue of MNB Bulletin. (http://english.mnb.hu/Kiadvanyok/mnben_mnbszemle/mnben_mnb-bulletin-october-2011). This paper contains the views of the authors, and does not necessarily reflect the official position of the Magyar Nemzeti Bank (central bank of Hungary). Many pieces of news have arisen in connection with the restructuring of the local government system since mid-2011; this article is based on information that became known until end-August 2011. However we made some preliminary comments on the changes executed at the end of 2011 regarding regulation of local governments. Responsibility for any mistakes lies with the authors alone.

In addition to cross-selling opportunities (EU applications, counselling, payment services etc.), banks' increasing *supply* experienced in the local government segment may have been fed by the approach built upon the continuous operation of local governments, which is typical among creditors: resulting from their tasks declared by law, local governments may not become completely insolvent, and total dissolution may not take place either, as they are obliged to ensure the performance of certain basic tasks, and the related revenues may cover repayments as well. There is some kind of concentratedness on the supply side, as the 7 banks that are the most active in local government financing have a market share of approximately 97 per cent.

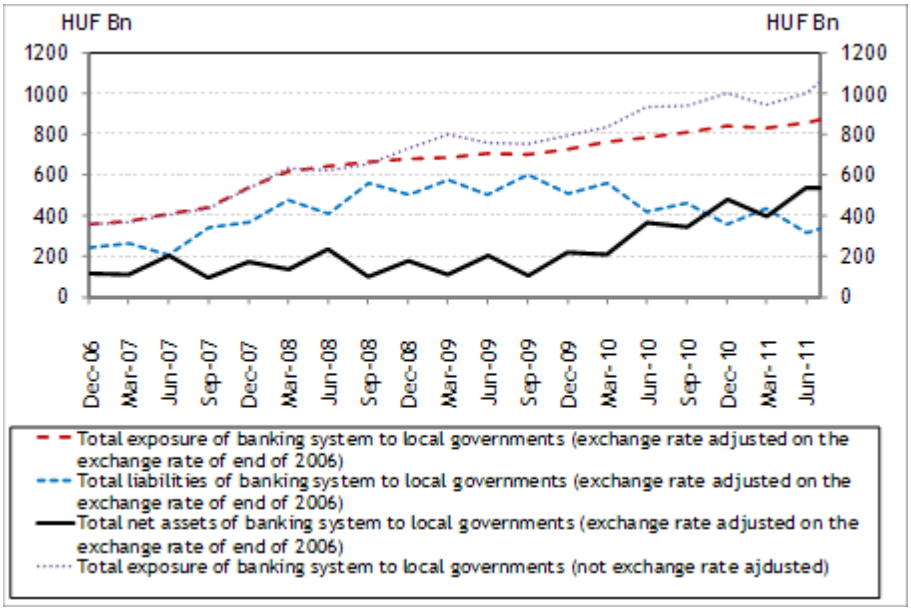
The demand of local governments *strengthened* due to three main factors. Firstly, the support programmes announced by the European Union basically require own funds and many of them provide the awarded funding only after the completion of the given project; therefore, it may have become necessary for applicants to advance the funds. Secondly, precautionary considerations stemming from the regulatory uncertainty may also have played a role in the considerable magnitude of indebtedness. As a result of the bills[1] pointing to restrictions in lending to local governments, as a kind of last opportunity – presumably in order to accumulate reserves – local governments expanded their resources even in economic situations when concrete investment objectives were not yet specified. The hypotheses of preparing for applications and of accumulating reserves in advance are confirmed by the fact that at system level the amount of deposits built up following the issue of bonds did not change for years, and the operating costs and accumulation expenditures of local governments did not increase until end-2009, i.e. the resources were not used for several years. Moreover, foreign exchange funds were available at a favourable price, which may provide an interest advantage attainable over the entire maturity, and allows, until the spending of the funds, the realisation of the difference between the interests to be paid after the foreign exchange loans and the interests received for the forint deposits.

As Homolya and Szigel (2008) analysed Hungarian regulatory limits to obtaining financing by the local governments were not effective, the realised local government financing was determined by interaction of supply and demand limited by risk management concepts of banks. As it is refered in Homolya and Szigel (2008) (p. 24.). The literature (Ter-Minassian and Craig, 1997) distinguishes four fundamental systems in the regulation of local government indebtedness: market discipline, direct controls by the centralgovernment; rules-based approaches; co-operative approach (decision of local governments in agreement with a central authority). Theoretically, from among these alternative methods the Hungarian system was rule-based before 2012, as the relevant act determined an annual maximum debt service for local governments, this regulation is that the annual liabilities undertaken by local governments (including all financing costs, primarily loan repayment, debiting the particular year) may not exceed 70% of their own proprietary revenues minus short-term liabilities. However this rule was incapable of limitation because of not reach of this preset limit by almost any local government, uncertainties about future compliance with these limits, and no predefined penalty for exceeding the borrowing limit. Thus the Hungarian system was a quasi market controlled system, however the control power of market players was limited by intransparency of financial positions of individual local governments (see Homolya and Szigel (2008) for more details). It is worh mentioning, that issue of limiting indebtedness of local governments is not only Hungarian specific question, in the last couple of years in case of different countries concerns about subgovernmental level public debt have been emerged (e.g. autonomous communities/ provinces in case of Spain, some states in the

[1] In November 2007, the Ministry of Finance prepared a proposal for amending the Act on Local Governments aiming at, inter alia, changing the existing borrowing limit. (The content of the proposal is outlined in Vigvári, 2007).

US).As the funds – mostly originating from bond issues – were placed as (forint based) bank deposits, the position of the sector vis-à-vis the banking sector deteriorated only slightly until end-2009, i.e. until local governments started to reduce their deposits. However, in the period between early 2010 and the publication of this article, net accounts receivable of the banking sector vis-à-vis the local government sector increased by HUF 444 billion (Chart 1). The worsening of the position is attributable to three main processes. The withdrawal of deposits was typical on the asset side of local governments. The decline in total deposits by around HUF 220 billion moved together with the increase in expenditures with an accumulation purpose (accumulation expenditures that are presumably related to EU applications increased from HUF 574 billion in 2009 to HUF 721 billion in 2010). In addition, operating costs also exceeded the 2009 level by some HUF 84 billion in 2010.

Chart 1: Position of the local government sector vis-à-vis the domestic banking sector



Source: MNB data.

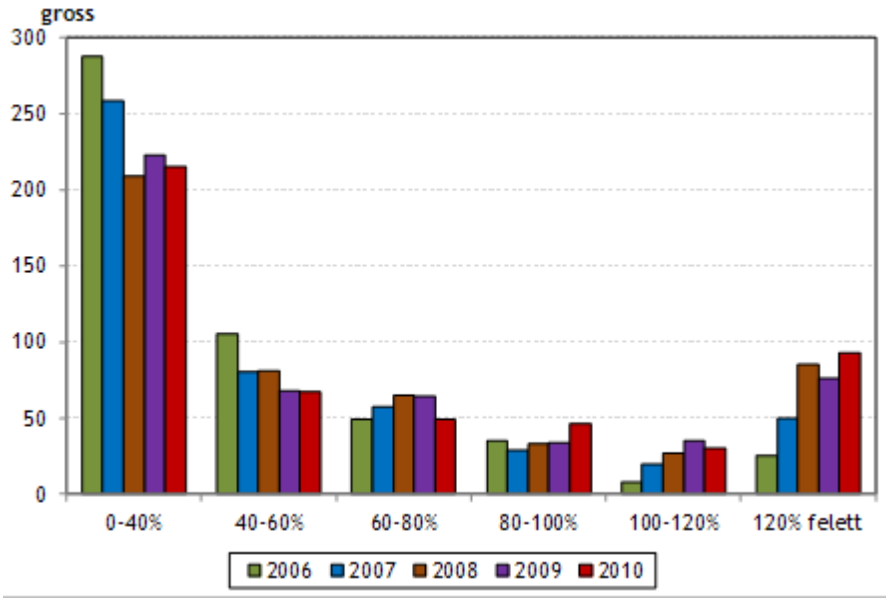
On the liability side of local governments – in parallel with the stagnation of long-term loans – the surge in overdraft credit impaired the position of the sector vis-à-vis the banking sector. Since January 2010, the total overdraft credit to local governments has nearly doubled, increasing from HUF 62 billion to HUF 116 billion. Local governments may have been encouraged to increase the amount of overdraft credit by the fact that – similarly to bond issues – using this form of loan does not require a public procurement procedure, as this loan is available as part of the payment service. On the other hand, the increase in short-term loans outstanding also indicates strengthening liquidity problems, which may stem from the stretched financial management of local governments. The developments in depositing and borrowing are also reflected in the fact that in 2010, in parallel with a slight increase in outstanding debt, the cash-flow based deficit of local governments grew considerably.

The weakening of the forint against the Swiss franc also resulted in the worsening of the net position. Due to the change in the exchange rate, accounts payable of the sector to the banking sector increased by some HUF 110 billion since 2010 Q1, which calls attention to the significant exchange rate risk surrounding the outstanding debt.

In addition to the aforementioned exchange rate risk, other default risks are also related to the accumulated debt stock. It carries an uncertainty whether local governments are able to produce the costs of their investment implemented, i.e. own funds for the application and the interest cost to be

paid in the case of subsequent financing. It indicates a slight development of efficiency that the participants of the sector spent nearly three quarters of the investment on real estate purchases and barely one fifth on real property renewal, i.e. operating costs may presumably decline only to a lesser extent. On the other hand, it is questionable whether the budgets of local governments were well-founded and based on forward-looking financial planning for a longer period of time as well. As the repayment of the principal part of the bonds issued usually has to be started only 3–4 years following the issue, short-term objectives may have overwritten the aspects of prudent financial planning. An indication of this is that while in 2006 the liabilities of only thirty-three of the largest five hundred local governments that have own revenues exceeded their own revenues, the number of such local governments already reached one hundred and twenty-three in 2010 (Chart 2). The increase in liabilities played a more essential role in the worsening of the liabilities-to-own revenues indicator observed in recent years than the decline in own revenues.

Chart 2: Changes in liabilities to own revenues of the five hundred largest local governments that have revenues of their own between 2006 and 2010



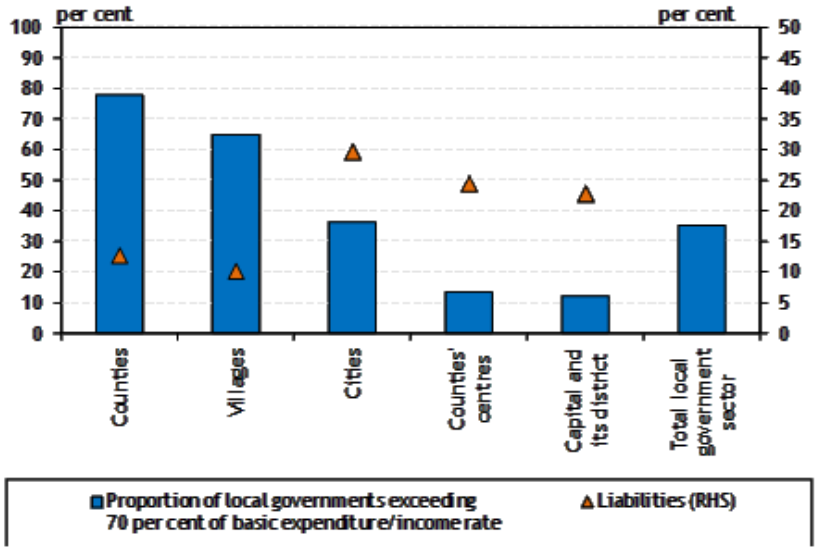
Sources: Hungarian State Treasury, the authors' own calculations.

For the sake of a complete analysis, on the basis of the data of the Hungarian State Treasury we also reviewed the profit and loss accounts, balance sheet statements and other reports of local governments. Individual level examinations reveal that indebtedness is strongly concentrated among larger local governments. The breakdown according to types of settlements shows that 23 per cent of the total debt accumulated at the municipality of the capital and at the districts of the capital. Their financial situation may be considered relatively stable; based on our data, these local governments have enough room for manoeuvre to afford the instalments due. The examination of the revenues (apart from the revenues related to securities and borrowing) and the basic expenditures (operating costs including the repayment burden due) of local governments reveals that basic expenditures exceed 70 per cent of revenues only in the case of one tenth of the capital and district municipalities.[2] Local governments of counties and small settlements are in the most stretched situation: in the case of both types, the ratio of local governments (value weighted with expenditures) where basic expenditures exceed 70 per cent of their revenues is significant, 60–80 per cent (Chart 3). Moreover, among the villages, around 23 per cent of the settlements (value weighted with expenditures) exceed the 100 per cent basic

[2] Value weighted with expenditures, means 5–6 municipalities.

expenditure/revenue ratio. Within own revenues that are determining in terms of the repayment ability, the business tax plays an important role. If the revenues originating from the business tax were deducted from total revenues, the amount of basic expenditures would exceed 70 per cent of revenues in the case of nearly three quarters of the two hundred local governments (typically larger settlements) where 90 per cent of the sector-level business tax revenue is realised. As a result, the risks related to solvency would increase strongly. Accordingly, any redistribution of the revenues originating from the business tax would result in a decline in the solvency of local governments that were considered creditworthy earlier.

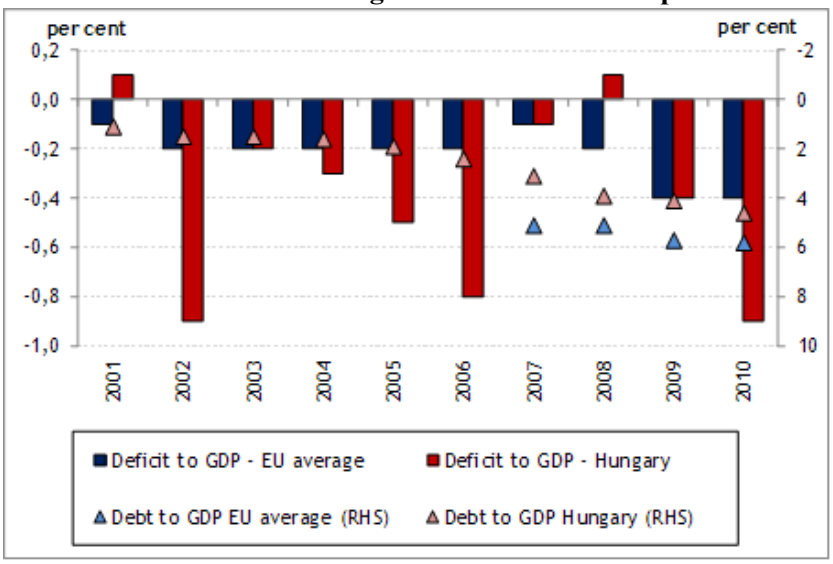
Chart 3: Liabilities of local governments and the proportion of those with a high basic expenditure/revenue ratio according to types of settlements



Sources: Hungarian State Treasury, the authors' own calculations.

Note: Basic expenditures mean the operating costs including the value of instalment due, whereas revenues contain all revenues except for the ones related to securities and loans.

Chart 4: Debt-to-GDP ratio of the local government sector compared to the EU average



Source: Eurostat.

Note: In countries where the Eurostat differentiates between separate local government and federal levels (Germany, Austria, Spain and Belgium), the federal level was not taken into account in the data published by us.

Although the system of tasks and financing of local governments varies across countries, it is worth having a look at the indebtedness of the Hungarian local government sector in an international comparison as well. The comparison with the local government sectors of the countries of the European Union shows that the domestic local government sector is clearly among the ones that have accumulated high deficits, although its debt as a proportion of GDP cannot be considered extreme for the time being. Nevertheless, it may be a reason for concern that as a result of the high deficits, debt as a proportion of GDP increased from the 1.1 per cent level typical at the beginning of the millennium to 4.6 per cent by 2010. This also shows that a stricter regulation of the financial management of local governments and ensuring adequate financing are necessary.

2. Risks from the aspect of the banking sector

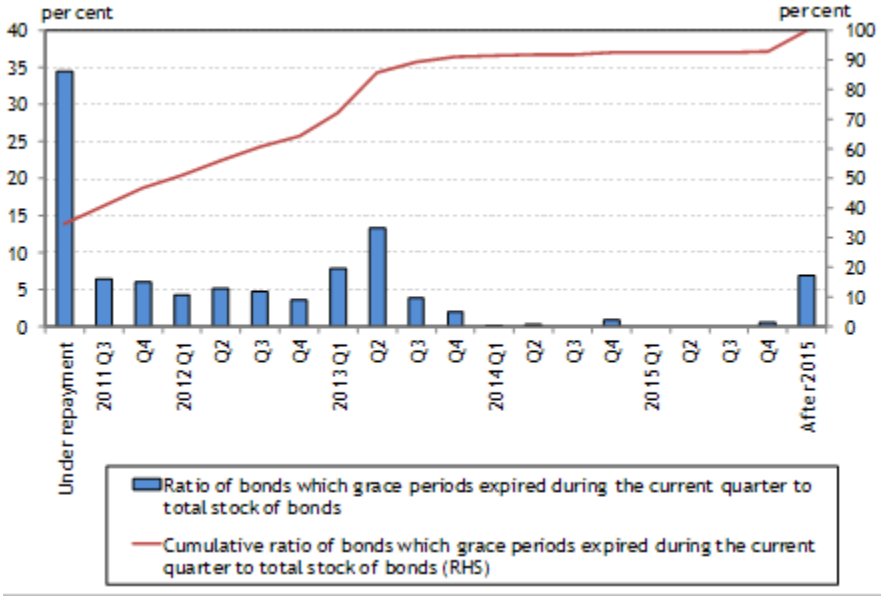
Bonds outstanding, which exceed half of the total exposure of local governments, were typically issued between 2006 and 2008. As a result of the intense competition among banks, the premium levels that evolved were advantageous for local governments. 90 per cent of the Swiss franc based bonds, which account for the greater part of bonds outstanding, were issued with a premium between 0 and 150 basis points above CHF LIBOR. It is worth mentioning that these premium levels are even below the premiums of the bonds issued by Swiss local governments, in spite of the fact that in their case the risk stemming from the uncovered foreign exchange position does not exist. As deposit and lending rate statistics for the local government segment are not available for us, we can only rely on the 'public opinion' revealed repeatedly during interviews with banks, according to which income appears in the local government segment through the cross-selling opportunities. In addition to credit and bond products, banks offer a wide range of products to local governments, starting from keeping an account to option dealing, which may generate commission income for banks. The typically 3–5-year principal repayment grace periods of the bonds issued (in a total value of approximately HUF 550 billion) started to expire at end-2010. Based on our estimates, by end-2011 nearly half of all the bonds outstanding will reach the repayment period, and this ratio may even amount to 90 per cent by end-2013 (Chart 5). Thus, although until now the low interest rate level and the fact that it is tied to a variable rate (between mid-2008 and August 2011, the 3-month CHF LIBOR interest rate declined by some 2.5 percentage points to a level of 0–0.2 percentage points) offset the effect of the strengthening of the Swiss franc on the repayment burden, the starting of principal repayments imposes an increasing burden on local governments.

Calculating with the end-2010 exchange rate, with the start of the principal repayment periods, in 2011 the repayment burden related to total long-term liabilities may exceed HUF 60 billion. The increase of HUF 8 billion in the bond repayment burden plays a determining role in the HUF 10 billion increase in the repayment burden compared to 2010. According to our estimate based on forward-looking reports of local governments, by 2012–2013 the total repayment obligation may grow to HUF 80 billion. Accordingly, the repayment burden related to long-term debt will increase from 0.2 per cent in 2010 to 0.3 per cent as a proportion of GDP.

Based on portfolio indicators at the end of the second quarter of 2011, the exposure of banks to local governments cannot be considered problematic, although observable changes project an increase in risks. Especially the risks related to bonds outstanding have increased. At the end of the second quarter of 2011, the proportion of non-performing loans was 1.2 per cent in the case of *loans to local governments*. According to our estimate, at end-June 2011 the 90+ day delinquency rate within *total bonds outstanding* was nearly 3 per cent, which means a gradual increase compared to the level of 2.1 per cent at end-March 2011. Accordingly, within total local government exposures the ratio of non-

performing loans reached 2.1 per cent, while the loan loss provision coverage of this stock grew to 14 per cent, which is below the approximately 40 per cent coverage of the total non-performing bank loan portfolio.

Chart 5: Timing of the start of principal repayment within local government bonds outstanding



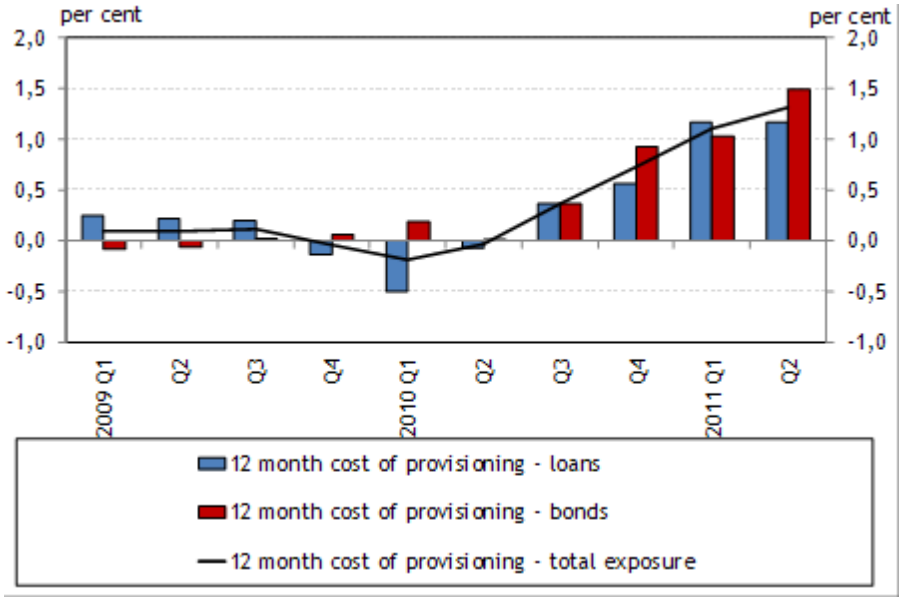
Source: MNB data.

The increase in the ratio of the amount of new loan loss provisioning to exposure also points to portfolio deterioration. The cost of provisioning as a proportion of total loans outstanding increased from the level of around 0 observed until mid-2010 to 1.3 per cent by mid-2011 (Chart 6), and data show that the banking sector practically started provisioning for the exposure to local governments only from mid-2010 on. The 1.5 per cent level of loan loss provisioning as a proportion of total loans outstanding at end-June 2011 is far below the approximately 5 per cent exposure-proportionate amount of provisioning for all the credit type (loan-based and debt security-based) receivables of the banking sector. Looking ahead, however, we consider it important that banks should apply prudent loan loss provisioning methods for the local government exposure, and should keep adequate records of the restructured transactions, reflecting the risks related to the exposures.

The start of restructurings related to the local government segment during 2011 also projects a worsening in risk indicators. At end-June 2011, restructured exposure fluctuated around the level of a mere 1 per cent. However, demand for restructuring from the borrowers' side appeared already concerning the 3–4 per cent of the portfolio, and based on the data of the Senior Loan Officer Survey on Bank Lending Practices[3] conducted by the MNB in July 2011, banks expect an around 10 per cent restructuring as a proportion of total loans outstanding by end-2011 (Chart 7). According to the survey conducted among banks by the Central Bank, from the demand side, i.e. local government side, the demands related to restructuring are mainly driven by the decline in revenues, expenditure structure problems, unsuccessful investment and exchange rate changes. Meanwhile, the management of solvency problems and the smoothing of loan losses are the determining aspects on the side of the banks.

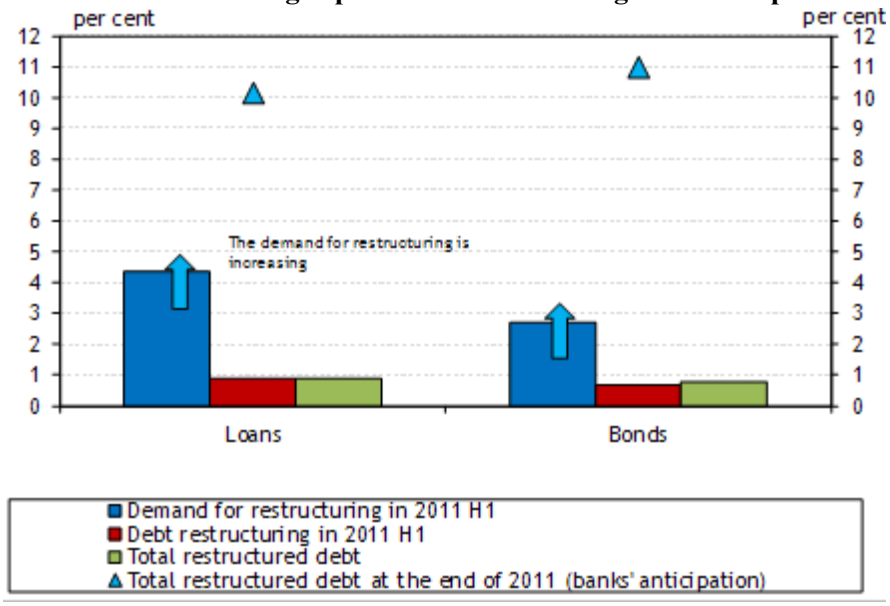
[3] http://english.mnb.hu/Root/Dokumentumtar/ENMNB/Penzugyi_stabilitas/hitelezesi_felmeres/mnben-hitelezesi-felmeres-20110825/Senior_loan_officer_survey_on_bank_lending_practice_2011_Q2.pdf

Chart 6: Cost of provisioning in the local government portfolio



Source: MNB data.

Chart 7: Restructuring expectations in the local government portfolio



Source: MNB data.

Banks usually apply extension of maturity and temporary complete or partial principal repayment moratorium as means of restructuring. Restructurings allow the payment burdens of the local governments concerned and their scheduling to be adjusted to a different environment compared to the situation expected earlier. At the same time, restructuring allows banks to apply pricing that better reflects risk costs and costs of funds. Recently, some local government organisations proposed a further general principal repayment moratorium of 1 or 3 years covering all bonds. However, in our opinion, due to the uniqueness of local government transactions, the optimum solution may be to treat the cases of local governments that have payment difficulties individually.

Restructurings indicate that the banking sector is willing to manage the risks related to the local government portfolio. However, in addition to willingness, another important issue is whether the banking sector is able to manage the payment difficulties that arise. Examining local government bonds outstanding that are considered to be the riskiest, the ratio of total local government bonds outstanding to the end-June 2011 capital buffer does not significantly exceed 50 per cent. In the event that in addition to the already existing loan loss provisions a significant, 10 per cent aggregate loss[4] appeared on the total bonds outstanding, only 7 per cent of the capital buffer of the banks that active in the local government segment would be used up, and there would not be any bank where the potential loss would exceed half of the buffer available. In line with the concentration of exposure, risks also affect the participants of the banking sector in a concentrated manner. Database about relationship with banks is available for total bonds outstanding. Based on this, it can be established that in the various settlement segments basically the share typical of the total local government exposure is reflected. The related risks may be increased by the approximately HUF 200 billion exposure to local government companies found in our survey conducted during the summer of 2011 as well as the financing of PPP projects, and manageability may be limited by the culmination of possible other risks.

It may happen that the risks related to the local government sector will further be increased by the derivative transactions concluded by them. We assume that customer payments vis-à-vis the non-financial sector concluded with those other than non-financial corporations and private persons may provide a rough estimate of the derivative positions taken against local governments. Based on end-June 2011 data, the market value of these positions was around minus HUF 6 billion. This does not entail an effect on the profit of the banking sector due to its covered position (the commission revenue related to transactions means income), but it may mean a potential profit for the local government segment. Information that allows the analysis of these derivatives has been available since early 2010. It can be established that compared to 2010 Q1 there has not been any material change in the market value of these positions, but there has been a decline in the contract value of transactions, which indicates some kind of adjustment. The number of partners has remained between 60–70.

3. Regulatory issues[5]

In addition to the risks accumulated to date in connection with the debt of local governments, the future situation of local governments may significantly be influenced by the restructuring of the whole system. Together with a narrowing of the basic tasks and the assignment of important institutions to the central government it may arise that together with the reorganising of the tasks of certain local government segments (local governments of counties) their debt are to also be assumed by the state, resulting in a clear picture. It is important to emphasise that by this step government debt would not increase, as the debt of local governments is a part of government debt at present as well.

The concept of the government published in May 2011 raises several possibilities, including the central management of local government debt, the reorganisation of tasks and a possible moving of the current accounts of local governments to the Hungarian State Treasury. Until end of 2011 such a legal change were not executed. According to the prevailing regulation and practice, the current accounts of local governments are held at credit institutions, and they are allowed to change account-holding credit

[4] This assumption means that 20 per cent of the local governments involved in the total bonds outstanding would get into trouble, and a 50 per cent loss would develop on each of them.
[5] As the cut-off date for the overall research was August 2011, we do not analyse in more details the news law on local governments of Hungary accepted at the end of 2011. However this does not imply irrelevance of our analysis.

institutions only as of the first day of each month. Moreover, the Hungarian State Treasury has to be notified of the change in writing 30 days in advance.[6] The transfer of account-holding to the Hungarian State Treasury would result in lost revenues for banks, and at the same time it would be a credit risk increasing factor, which may be reflected in an increase in financing costs. However, in the case of a change like this, the more recent information base regarding the financial situation of the local government sector as a whole would be available in a more up-to-date manner and the increased possibility of controlling financial management would entail an important advantage from a national economy aspect.

From the aspect of financial stability it is important that repayment by local governments should remain an acknowledged obligation, and, looking ahead, local government borrowing constraints move in the direction of 'effectiveness'. This latter is especially important because the current debt constraints are too loose, and thus they are not effective at system level. According to our estimate, the statutory borrowing limit may effectively arise at 8 per cent of the approximately 3,200 local governments, whereas this ratio is a mere 3 per cent as a proportion of own income. Reacting to the significant foreign exchange based exposure it may be worth considering that impose limits to foreign exchange based indebtedness, in order to prevent the development of future risks. It is a positive shift that pursuant to the change in legislation effective as of early 2011, if a local government borrows with a maturity of over one year or issues bonds, the body of representatives is obliged to entrust an auditor in advance, and the auditor is obliged to let the body of representatives know about his professional opinion on the planned assumption of an obligation. The body of representatives is obliged to inform the financial institution providing the financial service about the opinion of the accountant.

The amendment to the Constitution also created a possibility of strengthening the central control over borrowing: 'An Act may define conditions for, or the Government's consent to, any borrowing to a statutory extent or to any other commitment of local governments with the aim of preserving their budget balance.' (The Constitution of Hungary effective as of 1 January 2012). The intention of a stronger control of borrowing also appears in connection with the local government concept discussed by the Government in August 2011. The Law on economic stability of Hungary (Act CXCIV of 2011) accepted at the end of 2011 defined limits stricter than earlier and central government controls on newly disbursed indebtedness by local governments, which might be a significant step to direct Hungarian local government system from a quasi market based system to a control/rule based system.

The procedures that help in arranging situations related to insolvency are of key importance from the aspect of credit risks. It is important to emphasise that there is no state guarantee on local government debt, and in the event of any payment problems, liabilities may be settled in a debt settlement procedure. Nevertheless, in the current turbulent environment the uncertainties related to local governments' ability and willingness to pay may add to the sensitivity to risk related to the Hungarian sovereign as well.

The settlement of local government debt is regulated in Act XXV of 1996, which sets up a clear framework for cases of insolvency and can be considered a good statutory regulation even in international comparison. The purpose of the act is that bankruptcy proceedings provide for the restoration of the solvency of local governments, in addition to performing their mandatory duties and satisfying creditor claims in proportion to the disposable assets. The debt settlement procedure of local

[6] It is worth mentioning that the Heves County Local Government, which is under debt settlement proceedings, took over its current account to the Hungarian State Treasury, which reduces the chances of intervention of the credit institutions concerned (mainly those of the OTP Bank). The prompt timing of the step taken by the Heves County Local Government raises the issue of conflict with the prevailing Hungarian legislation.

governments is different from the corporate bankruptcy law procedure due to two main reasons: firstly, because local governments have to provide the basic public services during the debt settlement procedure as well; secondly, because the available collateral is special. Prior to 2010, debt settlement procedures usually started in the case of smaller local governments, but during 2010 already in the case of larger local governments as well (Szigetvár, Esztergom; and Heves County in 2011).

In the summer of 2011, to some extent independently of the restructuring of the local government system as a whole, local government debt settlement procedures were changed. Within that, the definition of the assets that may be involved in the debt settlement remained unchanged, but the legislation gives a more precise definition of the elements that cannot be involved in the debt settlement (Table 1). Accordingly, the scope of collateral that can be involved in the debt settlement is practically narrowed to assets that do not serve the purpose of public tasks or the ones not yet secured for the purpose of another institution.

Table 1: Change in the scope of assets that cannot be involved in local government debt procedures

Assets excluded from debt settlement (before the change in July 2011)	Assets excluded from debt settlement (after the change in July 2011)
residential real estates and other real estates that were transferred from state ownership to local government ownership	residential real estates and other real estates that were transferred from state ownership to local government ownership
	assets for which the state provides support and contribution
	assets of local government partnerships and local minority self-government(s) appearing in the budget of the local government
	the own fund and support parts of development and operating resources won by the local government or its budgetary body through an application exclusively for a given purpose, related to the performance of a mandatory task stipulated by law
	separately managed sum allocated to the local government in order to settle the ownership situation of church-owned real estate

Source: authors's own construction

At the same time, the amendment to the law also defined the revenue that can be involved in debt settlement (the amount of own revenues collected in the given year or outstanding as receivables as well as the revenue from assigned central taxes, from the launching of the debt settlement procedure until the recovery of the declared creditor claims). The so-called reorganisation loan was defined, which may help in the repayment of earlier outstanding debt with interest subsidy that can be provided with a ministerial decision. In addition, the scope of mandatory tasks that have to be performed during debt settlement as well was narrowed by certain social benefits and expanded with certain tasks.

Based on the amendment, the power of the mayor is narrowed during the whole procedure, while the power of the bodies of representatives has increased, which may facilitate the adoption of measures related to the debt settlement. The amendment to the regulation allows the restructuring of budgetary bodies and public education institutions belonging to local governments during the debt settlement even with immediate effect, contrary to the rules regarding normal operation.[7]

Overall, from the aspect of banks the inclusion of the experience of earlier debt settlement procedures in the regulation is a favourable development. The narrowing of the scope of collateral that may be involved in debt settlement could be a problem, but the use of significant real estate collateral behind local government exposures was not typical earlier either (only a mere 4 per cent of the total debt outstanding is covered by real estate), and the magnitude of other collateral (mainly guarantee) is nearly 11 per cent as a proportion of the total debt outstanding. The practice of the request of collateral is in line with the already mentioned assumption presented in the article by Homolya and Szigel (2008) that banks base their financing decisions on the continuous operation of local governments. Namely, in spite of the uncertainties explored, credit institutions are not afraid of suffering significant losses on their local government portfolios because local governments cannot be liquidated even in the case of a bankruptcy, and their sources of revenue may not dry out completely either. Also, credit institutions expect the insolvent institutions to meet their obligations sooner or later anyway, even without state intervention, by rescheduling the loans and restraining their expenditures, using their own revenues. Looking ahead, however, the increasing risks in the local government segment point to the remaining of the strict lending conditions.

4. Summary

Until 2011, the repayment of the bonds subscribed during the bond issue boom experienced in the local government sector in 2007–2008 started only in the case of one third of the bonds outstanding.However, by the end of the year nearly 50 per cent and by end-2013 90 per cent of total bonds outstanding will reach the repayment period. As a result of the significant exchange rate exposure, the declining revenues of local governments and the deteriorating economic prospects, solvency problems may arise. Appropriate management of the risks related to the portfolio is important from the aspect of the undisturbed operation of the financial system; at the same time, the opinion formed of the Hungarian state abroad may also be negatively influenced by the risks related to the local government sector. Our analysis suggests that the banking sector is willing and able to manage these risks. Looking ahead, however, from this aspect the future comprehensive restructuring of the local government sector as a whole by the Government may be essential.

Acknowledgement

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[7] For example, normally it has to be decided before the end of May whether the operating right of a school will be transferred to another organisation or not.

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The significance of fiscal space in Europe's response to the crisis

Zoltán Bartha Andrea Sáfrányné Gubik

The textbook response to deteriorating economic performance is monetary easing, the lowering of official interest rates. When the financial and economic crises hit Europe in 2008, however, monetary policy had very little room in most European countries, as the central bank interest rates were already pretty low. Fiscal policy instruments had to be used therefore, a branch of economic policy that was believed to be dated by many mainstream economists.

In contrast to their interest rate conditions, the European countries formed a quite heterogeneous group in regard to their fiscal space: some had more because of balanced budgets and relatively low national debt ratios; others had a lot less. The paper analyses the responses given by 30 European countries to the crisis, and combines the effects with the pre-2008 fiscal characteristics. It identifies some clusters based on their performance and on their major fiscal indicators before and after the crisis.

Keywords: fiscal space, European economies

1. Introduction

According to Eurostat data, the combined real GDP of the EU27 fell by 4.3% in 2009 – the biggest drop in the performance of the European economies since the Great Depression (European Comission, 2009). Although a minor decline in the Western European real GDP could be detected in 1993, Europe's economy fit in nicely with the idea of 'Great Moderation', a concept suggesting that the necessary economic policy instruments were finally found in order to help the advanced economies avoid major variability of output and of inflation. The era of Great Moderation brought us the shift from fiscal policy to monetary policy, and focused the attention of policymakers on inflation (as the main message of the mainstream theory was that the highest long term growth rate can be achieved by ensuring a stable rate of inflation).

When the crisis struck, however, the monetary policy focus could not be maintained, partly because of the liquidity trap, partly because of some other factors. The liquidity trap restricts the scope of monetary policy expansions when the pre-crisis interest rate is already low, like it was in most parts of Europe and America (the European Central Bank's interest rate on the main refinancing operations, for example, was around 4% in the beginning of 2008). In case of an adverse shock the textbook expansionist answer is a decrease of the interest rates, but because the nominal rate cannot go below 0, central banks across the world had little room for action, and so the steps taken by them could not be effective enough.

Hence the practice and analysis of fiscal policy has come to the forefront of attention again. In line with these developments, the paper sets the fiscal answers of the European countries against their economic performance during 2009-2010, and attempts to test the hypothesis that countries with more fiscal space can perform better at handling the crisis.

2. Fiscal space

After the Second World War fiscal policy had been seen as the central macroeconomic tool. Stagflation problems of the '70s slowly shifted the focus to monetary policy, and a number of reasons were listed why fiscal policy cannot be effective: its effect on aggregate demand was questioned based on the Ricardian equivalence; high debt levels made it difficult to further expand government intervention; as fiscal policy decisions are made by politicians, there can be a distinctive lag between the design and the implementation of the tools, and lobby groups can distort the decisions (Blanchard et al., 2010).

2008 on the other hand saw a steep fall in aggregate demand, and the two macroeconomic policies used during the previous two decades to stabilize the economy proved to be insufficient. As the crisis struck worldwide, an export-led recovery strategy was not an option; and monetary expansion, because of the liquidity trap mentioned earlier, had also had limited effect (Spilimbergo et al., 2008). European governments therefore turned to the textbook Keynesian theory: they implemented fiscal stimulus plans that were meant to prop up aggregate demand. The two basic elements of such stimulus plans are the increase of government purchases, and the decrease of government revenues (tax cuts). Either method is used, an increase in the budget deficit is unavoidable, and greater deficits also lead to higher public debt.

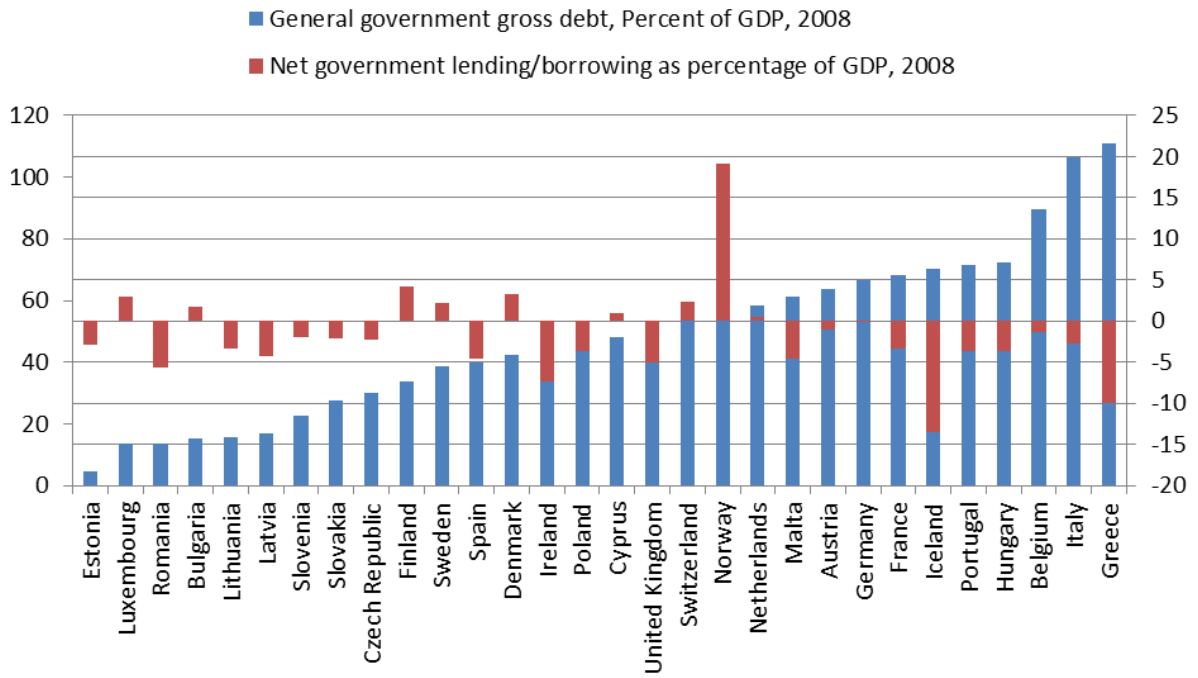
Countries that face high levels of public debt are very limited in their possibilities to use fiscal stimulus. High public debt leads to high interest payments, so much of the money that could be used for stimulating demand has to be paid to the creditors. The efficiency of fiscal policy is also limited therefore. Just as the zero bound on the nominal interest rate leads to liquidity trap and a failure of monetary policy, high debt leads to very narrow fiscal space and a failure of fiscal policy.

The crisis gives the opportunity to test the concept of fiscal space. The European countries started 2008 with quite different government debt levels and budget balances. The two indicators used to characterize the fiscal space of the 30 European economies (the EU27 and three EFTA members: Iceland, Norway and Switzerland) are the following:

- general government gross debt, percent of GDP, 2008;
- net government lending/borrowing, percent of GDP, 2008.

Figure 1 clearly demonstrates the differences in fiscal space in Europe. Countries like Luxembourg, Bulgaria or Sweden, with budget surpluses and low levels of public debt naturally had more room for fiscal stimulus, while countries like Hungary, Portugal or Greece were clearly in trouble. The question is, have this difference in fiscal space had any effect on these countries economic performance in the years after 2008?

Figure 1: Fiscal space of 30 European countries



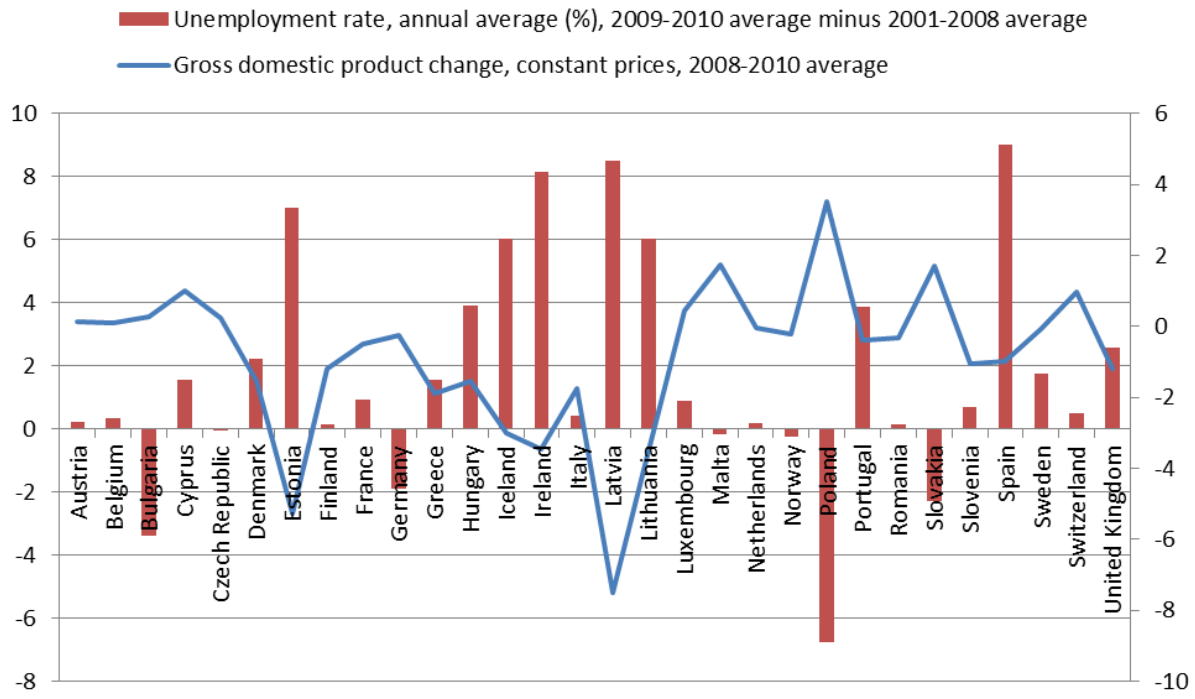
Source: Eurostat and IMF data.

3. Measuring economic performance

Our hypothesis to be tested in this paper is that the European countries with more fiscal space could implement more efficient fiscal stimulus plans, and therefore were able to perform better in the years after 2008. The performance of the countries traditionally is measured with changes in GDP and employment, and that is what we used as well, namely the change in the real GDP growth rate and the change in the unemployment rate (although in most analysis the former was used as the primary indicator, because of the lagging nature of the unemployment rate).

Figure 2 shows the variety of reactions the European economies had after the crisis. There were four countries where the unemployment rate even dropped (the decrease was almost 7 percentage points in Poland), a most surprising development given the circumstances. Poland was the front runner in real GDP growth, too (the only country in the sample that had a positive change in real GDP in 2009), although there were a few other countries with minor growth rates. The Baltic countries or Ireland, on the other hand, took quite a bit of hammering after 2008.

Figure 2: Post-crisis performance of European economies

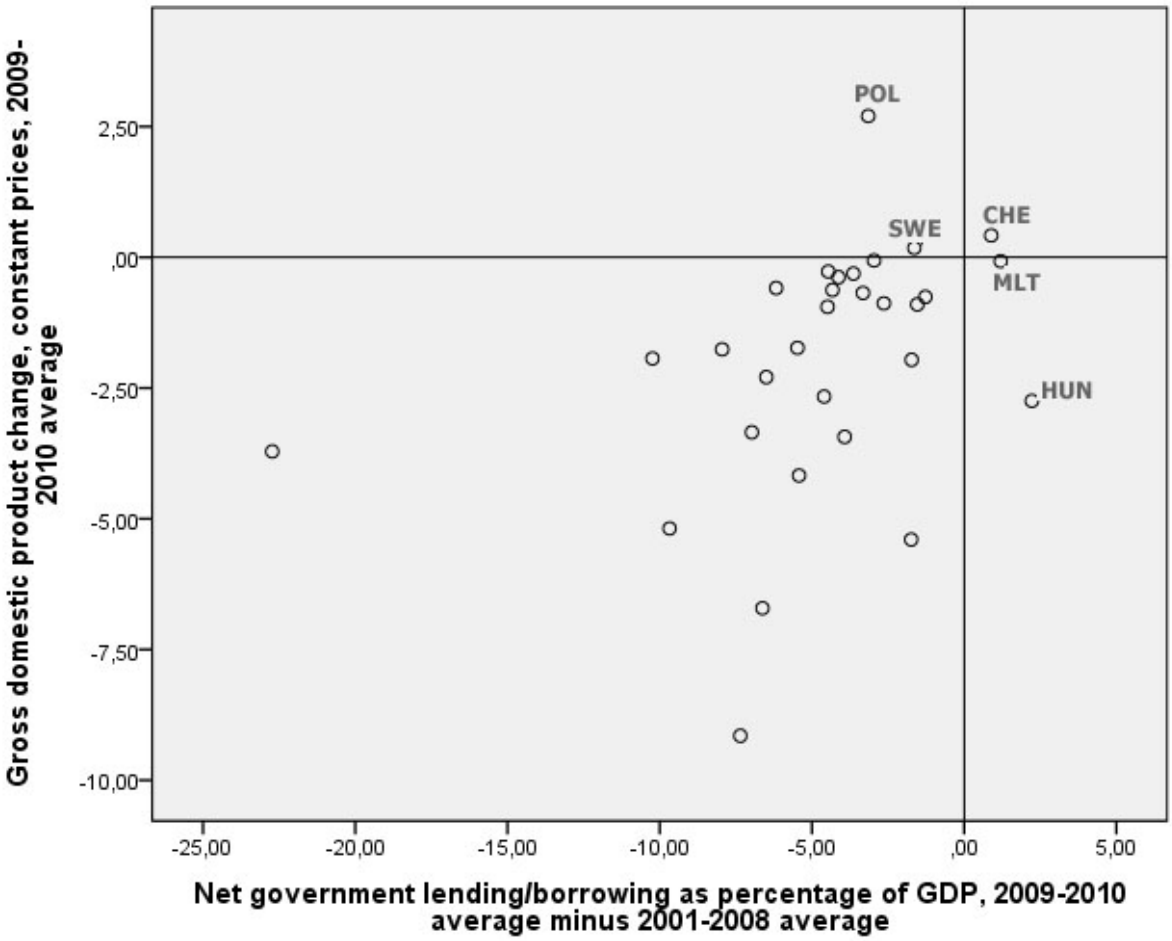


Source: Eurostat and IMF data.

4. Fiscal stimulus in Europe

Assessing the fiscal expansion activity of the European countries is quite difficult as only raw and aggregated data are available for the 30-country sample. We can take a look at the central budget deficit, but as our indicator compares the net government lending/borrowing position to the GDP, changes in the GDP will automatically distort the value of the indicator. Nevertheless it is obvious that most countries ran a higher deficit after the crisis than before it (see Figure 3). The three exceptions are Switzerland that had a more or less balanced budget both before and after the crisis, Malta that had an Excessive Deficit Procedure running, initiated by the EU, and Hungary that had to cut the deficit because of the agreement it made with the IMF and the EU in late 2008.

Figure 3: Changes in budget balance and GDP growth rate



Source: Own calculations based on Eurostat and IMF data.

If we measure the change of budget deficit in national currency, a very similar picture can be drawn, although there are some significant changes. Malta, again, is on the right side of the line, but the other two countries that join them are Estonia and Latvia. The two Baltic countries raised taxes almost immediately after the crisis struck, which resulted in 1) a more or less stable deficit if measured in national currency; 2) a massive decline in demand, and in GDP; and 3) a significant increase in budget deficit compared to the GDP.

Either way, we can conclude that most European countries tried to stimulate their economies with the tools of fiscal policy (be it an automatic tool, like progressive income taxes or unemployment benefits, or a discretionary one, like the scrappage programs or tax cuts). A direct result of the stimulus programs was the increase in budget deficits and public debts, but economic growth was not stimulated. 27 countries registered a drop in their GDP after 2008, Sweden and Switzerland had insignificant increases (an annual growth rate well below 1%), while Poland miraculously enjoyed a healthy rate of GDP growth.

Figure 3 also proves that the path taken by the European economies after the crisis was not unanimous. There is a variety of explanations on the heterogeneous reactions; some of them can be tested on the database that was available for us, some others cannot. The paper discusses some of these explanations, and specifically focuses on fiscal space, as one of the possible explanations.

Table 1: An intuitive classification

Groups	Countries	GDP change, const. prices, 2009-10 av. minus 2001-08 av. (mean)	Net gov. lend./bor., % of GDP, 2008 (mean)	General gov. gross debt, % of GDP, 2008 (mean)	General gov. lend./bor., Nat. currency, 2010/2008 (mean)	Imports of goods & commercial services, % of GDP, 2007 (mean)
Group 1	Belgium France Germany Poland Portugal Switzerland	-1.83	-1.63	66.29	-6.16	50.38
Group 2	Denmark Italy Malta Netherlands Norway Sweden	-2.71	2.97	60.60	-2.83	50.54
Group 3	Austria Cyprus Cz. Rep. Luxemb. Spain UK	-4.19	-1.47	41.25	-2.52	62.46
Group 4	Finland Greece Hungary Ireland Slovakia Slovenia	-6.72	-3.45	51.94	-4.13	64.66
Group 5	Bulgaria Estonia Iceland Latvia Lithuania Romania	-11.82	-4.65	22.77	-1.96	65.66

Source: Own calculations based on Eurostat and IMF data.

5. Groups of European economies

Using the SPSS 19.0 software package, an attempt was made to identify possible clusters of European economies based on the pre-crisis fiscal space and post-crisis economic performance. The attempt failed, as it became apparent that there are way too many influencing factors that distort the results. To identify some of these factors, an intuitive grouping of countries was done in the following way:

1. All 30 countries were arranged in rank order based on their GDP growth first (the indicator used: *Gross domestic product change, constant prices, 2009-2010 average minus 2001-2008 average*; this one shows the rate at which economic conditions have deteriorated compared to the pre-crisis levels).
2. Then the countries were sorted into five groups consisting of six members each. Group 1 contains the countries that had the least drop in the GDP growth rate, and Group 5 contains the ones that suffered the most (see Table 1).

Columns 4 and 5 of Table 1 contain the group averages for the two indicators that were chosen to measure the fiscal space. The values for net government lending/borrowing position might back our hypothesis, as higher ranked groups have a larger average, than the lower ranked ones. However they are not very convincing and they become even less so, if we control for a couple of extreme scores. Group 2, for example, would have an average of -0.26%, if Norway's huge surplus of 19.1% (a result of channeling oil revenues into a sovereign wealth fund) was disregarded. Group 5 on the other hand, would have an average of -2.88% which is not very different from the average of all the other groups, if Iceland's -13.5% deficit (a result of the fact that the crisis hit Iceland the earliest in Europe) was disregarded. The correlation between the budget balance and the change in the GDP growth rate is significant at a significance level of 0.06 and with a correlation coefficient of 0.348, which indicates a weaker than modest connection between fiscal space and economic per-formance.

If we called the averages of the previous indicator not convincing, then the indicator for public debt downright contradicts our hypothesis. Countries with lower levels of public debt, thus more fiscal space should perform better, but column 5 of Table 1 shows that Group 5 has by far the lowest public debt level, while Group 1 has the highest one.

Table 1 also includes some data that might explain why our initial hypothesis is not backed by the group averages for net government lending/borrowing and public debt (both as percentages of the GDP). Column 6 shows the change in government lending/borrowing position between 2008 and 2010, measured in the national currency of the countries. In case of aggregate shocks it is natural for this indicator to become worse, turning surpluses into deficits, or moderate deficits into larger ones, partly because of the automatic stabilizers, and partly because discretionary steps taken to boost the aggregate demand. There is a significant difference however between the group averages: Group 1 members worsened their budget balances six times on average, while Group 5 members only doubled it.

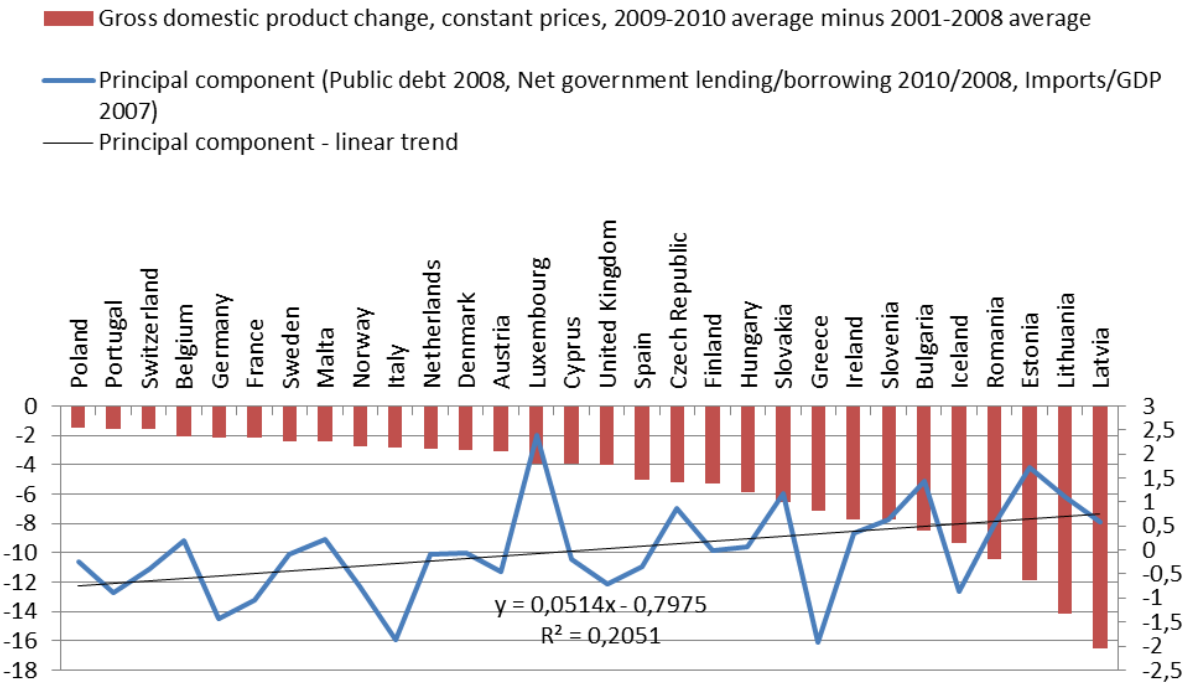
One of the reasons why the effects of fiscal space cannot be shown robustly is the institutional environment in Europe. Estonia, for example, has an operative balanced-budget amendment, as a result of which the country turned a minor deficit from 2008 into a slight surplus in 2010.

The other factor brought to explain the discrepancy between fiscal space and GDP growth is the openness of the economy (see the final column of Table 1). Open economies have a lower multiplier (be it a tax multiplier or a government purchases multiplier), because some of the extra money pumped into the economy will end up in the pockets of foreigners (stimulating the foreign and not the

local economy). Therefore it is less rewarding for an open economy to adopt fiscal stimulus at the price of huge budget deficits. So the other factor distorting the effects of fiscal space is the openness of the economy, which is measured as the ratio of imports to the GDP.

Principal component analysis is a tool that allows us to control for the deviations caused by different budget balances and openness levels in the effect of public debt ratios on GDP growth rate changes. It merges the effects of the three factors to be found in column 4, 6 and 7 of Table 1 into one single data stream. Figure 4 presents the correlation between the merged indicator and the indicator chosen to measure the post-crisis economic performance. The correlation is significant (with a significance level 0.014, which is way under the usually accepted 5% mark), so there is a link between the three factors and the GDP growth rate, but it's a medium to week one, the correlation coefficient has a value of -0.446.

Figure 4: GDP growth and fiscal space when public debt is controlled for openness and budget balance



Source: Own calculations based on Eurostat and IMF data.

By calculating the principal component of the public debt per GDP, net government lending/borrowing position change and value of import per GDP, some evidence (be it a not really convincing one) was found to the assumed interaction between fiscal space and economic performance. As the correlation is negative, it is no longer true that a higher debt ratio, thus less fiscal space leads to a lesser drop in the GDP growth rate. Quite the contrary, when debt is controlled for the openness of the economy, and for some institutional factors that do not allow the government to overspend even if the public debt level is very low, it was found that bigger fiscal space actually results in a lower drop of GDP growth rates.

6. Eliminating outliers

To check if the results are distorted by the data values of some of the outlier countries, the correlation between the performance indicator (change in the GDP growth rate) and the fiscal space indicators (budget balance and government debt compared to the GDP) was recalculated after eliminating some

outliers. The elimination was based on the cluster analysis conducted earlier (clustering the European countries with the help of economic performance and fiscal space variables). The countries that fit the least into the European clusters were Belgium, Luxembourg, Iceland and Norway. After removing these four countries from the database, the correlation was tested again, but no stronger evidence was found to back our hypothesis:

- the correlation between the government debt and the GDP growth rate remained positive, more than that, the correlation coefficient even increased (again: the hypothesis would be backed by a negative correlation between the two variables);
- the correlation between the central budget balance and the GDP growth rate on the other hand became only significant at the significance level of 0.1 (an increase from 0.06, which might be a result of the smaller sample size), making the weaker than modest correlation even less convincing.

7. Main influencing factors of GDP change

As it became clear that the fiscal space doesn't explain the post-crisis performance of the European economies in a convincing way, an attempt was made to identify the main factors that contributed to the change of the two indicators chosen to measure economic performance. Two regression models were built with the two indicators as the dependent variable, and using stepwise regression all independent variables were eliminated that didn't have significant explanatory power (Table 2 and 3). From the two models the second one has more explanatory power.

Table 2: Regression model for the unemployment rate

Independent variable	Unstandardized coefficient	Zero-order correlation	Partial correlation
(Constant)	.778		
General government revenue, National currency, 2010/2008	-25.809	-.445	-.466
Net government lending/borrowing as percentage of GDP, 2008	-.219	-.348	-.377

Source: Own calculations based on Eurostat and IMF data.

Table 2 shows the details of the regression model built with having the indicator *Unemployment rate, annual average (%), 2009-2010 average minus 2001-2008 average* as the dependent variable. The dependent variable measures the effects of the crisis on the unemployment rate, by comparing the usual rate to the level that was observed after 2008. Two factors were found to be in significant correlation with the dependent variable, although both the zero-order and the partial correlation coefficients only show a lower than average linkage. According to the model an increase in government revenues (basically: raising taxes) allows the country to survive the crisis with a less vivid increase in the unemployment rate (as the government revenue variable is part of the second model as well, we will shortly get back to this topic).

The change in unemployment rate is also in a significant negative correlation with the 2008 net government lending/borrowing position, although the correlation coefficient is quite low (another sign of a correlation between fiscal space and economic performance).

Table 3: Regression model for the GDP change

Independent variable	Unstandardized coefficient	Zero-order correlation	Partial correlation
(Constant)	-3.013		
General government revenue, National currency, 2010/2008	22.404	.608	.498
Volume of exports of goods and services, percent change, 2009-2011 average	-.497	-.321	-.625
Total investment, percent of GDP, 2011 minus 2008	.501	.605	.617
General government total expenditure, National currency, 2010/2008	16.171	.469	.614

Source: Own calculations based on Eurostat and IMF data.

Using the *Gross domestic product change, constant prices, 2009-2010 average minus 2001-2008 average* factor as the dependent variable, a more manageable model can be built. Again, the indicator measures the effect of the crisis on the growth rate, by comparing the rate of growth that was usual for the economy before the crisis to that one observed after 2008. With four significant factors (government revenue and expenditure, changes in the volume of exports and investments) built into the model, the explanatory power of the independent variables is close to 79% ($R = 0{,}887$, $R^2 = 0{,}787$). Here are some of the conclusions that can be drawn from the regression model presented in Table 3:

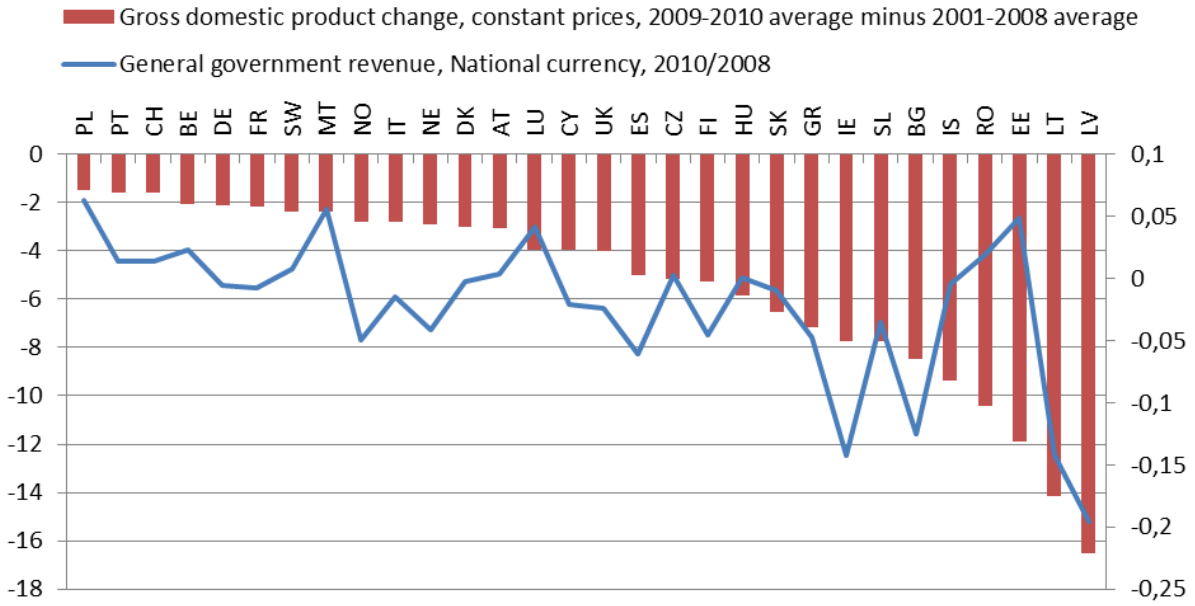
- Countries that managed to keep the investment level relatively high could get through the crisis by having a lower drop in the GDP growth rate. After taking a look at the other significant variables, it can be stated that using government money to boost the investments proved to be an effective way of stimulating aggregate demand in Europe.
- Both the change in government expenditures and revenues (measured in national currency) are in significant positive correlation with the change in the GDP growth rate. So governments that spent extra money on the stimulus the economy, and raised revenues by raising taxes, could moderate the cooling down of the economy significantly. The data seem to prove that government expansion and a more influential role of the state in times of a crisis can actually decrease the burden taken by the society.

8. Tax cuts vs. government purchases

One of the never ending topics of fiscal stimulus is the opposition of arguments for tax cuts and for the increasing of government purchases. Both steps should have a boost on aggregate demand, as tax cuts increase the disposable income, and therefore households can consume more (companies can have

more money for investments), while government purchases directly increase the demand in the economy. There is no consensus in the literature on which of the two steps has a greater effect on the economy – a detailed analysis on the topic can be found in Auerbach and Gale (2009). Various multiplier effects can be calculated using a variety of economic models. Mankiw (2010) mentions that the fiscal stimulus plan adopted by the Obama administration was based on calculations stating that the government purchases multiplier was 1.57 (every dollar spent will ultimately increase the GDP by 1.57 USD), while the tax multiplier only 0.99 (cutting 1 dollar in taxes increases the GDP by 99 cents).

Figure 5: Government revenues and GDP growth rate change



Source: Own calculations based on Eurostat and IMF data.

The debate on the multipliers is not a l'art pour l'art one, because with limited public resources the government should obviously concentrate on the method that can have the largest multiplier effect on the economy. Although multipliers cannot be calculated from the database we used, it is interesting to note that the change in public revenues has the strongest influence on the change in GDP growth rate, and the correlation is positive, i.e. the more revenues are raised, the less drop in the GDP growth rate is sustained (for a graphic presentation see Figure 5). In the tax cuts vs. government purchases debate this might be an argument for neglecting tax cuts in times of depression, and concentrating on stimulus plans that pump extra money from the central budget into the economy instead.

9. Conclusion

Strong and convincing evidence that proves the positive correlation between fiscal space and economic performance was not found. In fact the indicator *General government gross debt, percent of GDP, 2008*, which was chosen as the main indicator of fiscal space, is in positive correlation with *GDP change, constant prices, 2009-10 average. minus 2001-08 average*, the indicator of economic performance, meaning that the less fiscal space a country has, the less GDP growth rate drop it has to sustain. Our explanation to this finding was that at least a couple of factors can distort the results: institutional restraints, which could prevent governments spending over the revenues even if the country has a huge fiscal space; and economic openness, because fiscal stimulation is less efficient in a very open economy, and that might motivate governments of open economies to restrain themselves

from fiscal stimulus. When the public debt indicator is controlled for these two factors with principal component analysis, a negative correlation is found, which is in slight support of our initial hypothesis.

As fiscal space does not explain convincingly the differences in economic performance after the crisis, the most important determining factors were identified with the help of regression models. It was found that the change in government revenues and expenditures (from 2008 to 2010, measured in national currency) have the strongest influence, together with the change in total investments (from 2008 to 2011, measured as percentage of the GDP). Apparently the governments that allocate more resources to investments, can effectively lower the drop in GDP growth.

Finally, the positive correlation between the change in government revenues and the change in the GDP growth rate, worth mentioning, too. According to the data of the 30 European countries in our sample (the EU27 plus the three major EFTA members), the more revenue is raised by the government in the time of crisis, the lesser drop there will be in the GDP growth rate. This may sound strange, as the increase in government revenues means a drop in the disposable income of households and companies. A possible explanation can be that the money spent on stimulus by the government boosts aggregated demand a lot more efficiently than money left in the pockets of the people. It is well known that the propensity to save of households increases during crises, because people become insecure about the future. When faced with uncertainty, people tend to save more and spend less, which might explain why the countries with increases in the government revenue performed better during 2008-2010.

Acknowledgement

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The impact of tax policy on the welfare state

Anca Maria Brad

The paper seeks to find the impact of tax policy on income and wealth redistribution, as well as its effects on welfare. Redistribution through transfers has a major contribution to reducing inequality and polarization of income. The fiscal reforms in present-day circumstances imply as outcome the so called "tax uniformity", embedding income redistribution through budgetary mechanisms, an arrangement that greatly depends on the alternative chosen by the authorities for the distribution of tax burden among various categories of contributors. In Eastern European economies, under the absence of a sustainable economic growth and structural reforms, flat taxes can lead to polarization of income. The authors argue that if progressive rates are feasible in eastern countries, taxation reconsideration generates economic effects triggered by the change in tax burden and social effects triggered by a decrease in the unemployment, living conditions, education and labour.

Keywords: tax policy, redistribution, flat tax, progressive rates, welfare state

1. Introduction

The flat tax has become increasingly attractive in Eastern Europe. Estonia was the first country to introduce the flat tax in 1994, followed by other two Baltic States and Russia in 2001, Serbia in 2003, the Slovak Republic and Ukraine in 2004, Romania and Georgia in 2005 (Appndix 1). Some economies have maintained different taxes on income and profit. Thus, referring to the flat tax levied on income , it varies from 12% in Ukraine, 33% in Lithuania and even 37.5 % in Iceland. Excepting Georgia and Latvia, the flat tax was associated with an increase in tax allowances. In 2008, Bulgaria (with a rate of 10%) and the Czech Republic followed the trend.

The flat tax induces effects, both for the state budget and the taxpayers. In all the countries that have successfully introduced the flat tax the taxable base of income tax and the number of taxpayers have increased and the black market labour decreased. Under these circumstances, the purpose of progressive rates is not an economic one, but rather social: if the poorest are exempt and the richest are at advantage than the burden slides towards the middle class. As a consequence of flat taxation, the share of taxes in personal revenues increased substantially for those with low incomes. In this case, a negative fiscal redistribution occurs (it has regressive effect) (Brad, 2011).

Since flat taxation doesn't impact positivelly in emerging economies, a tax gap occurs that must be covered becauses otherwise the economic and social programs are compromised. In most cases the gap was covered by an increase of direct and indirect taxation. In Romania the income tax doubled from 1.5% to 3%, and the tax rate on distributed dividends to private shareholders increased by 3.2 times, from 5% in 2004 to 16% in 2006. Another example is Slovakia, where the revenues actually collected from income tax and corporate profit declined significantly as a share of total public revenues from 18.3% to 14.6%, andfrom 15.4% to 12.5%., respectivelly. These losses were more than offset by the increased share of the VAT (as a percentage of total revenues) from 41.9% to 44.9%. Overall, budgetary revenues increased by 7.4% in current prices. A similar situation happened in Romania in 2005, the first year when the 16% flat tax on income and profit was introduced. The actual collected taxes on income and profits have declined (while slightly increased in current terms), but these losses were balanced by the massive growth of VAT revenues. Further, the actual budgetary revenues from

taxes on income and profits have grown, but only after levying additional taxes, for example, dividend tax increased from 5% to 16% and capital gains tax increased from 1% to 16%. Based on these data, it is difficult to argue that taxpayers in Slovakia and Romania were stimulated to invest but rather to consume.

The main argument in favor of the flat taxation refers to its simplicity and its effectiveness of administration since a single rate is more easily understood by taxpayers and easily managed by the tax authorities (Voinea and Mihaescu, 2009).

An important issue is related to the ways flat taxation may encouraged investments. Theoretically, lower taxes for domestic citizens lead to a higher disposable capital for investments. Lowing the burden on high incomes may direct the after tax income towards luxury goods mainly from imports, thus impeding on productive investments. Nevertheless, statistics show that, ceteris paribus, flat taxation, in Romania, has led to increased foreign direct investment, investors finding the appropriate circumstances. Thus, according to the Romanian Agency for Foreign Investments, a year after the introduction of flat tax, in 2006, foreign direct investment increased by 57% (2004), when the progressive rates were in use.

Unlike the flat taxation, no matter on how many brackets progressive rates are spread on, they are less stimulating and may trigger tax avoidance and evasion. Therefore, the aim of progressive taxation is mainly redistributive rather than economical. The argument against the view that flat taxation favours individuals with high incomes, is that it applies to profit earning companies rather than individual incomes (salaries, wages, etc.). It is obvious that the middle class is favoured by flat taxation and therefore this class should be stimulated as the driver of the economy.

In terms the equity, tax distribution is intensely debated among economists. The question of fairness is centered on tax deductions and allowances that are abolished when a flat tax is introduced and the effects induced on businesses and taxpayers. The authors argue that when the theoretical effects of flat taxation do not apply (the middle class is insignificant) allowances and deductions should be used for low income individuals. In this manner we think that an indirect progressivity and redistribution are possible.

Redistribution by social transfers (benefits), taxes and social contributions, has a major lead to the reduction of income inequality and polarization. It is an area where policy makers face the need to ensure the balance between equity and efficiency, in order to assess the impact of redustribution as a fundamental of effective social policies (Dolenc and Laporšek, 2010).

2. Theoretical backround

Discussions on tax reforms take into account, usually three versions: flat, progressive and dual system, as a combination of the first two. Recent developments, particulary among Eastern European countries, show a trend towards adopting flat taxation. Literature provides interesting insights on the subject.

Murphy (2006) provides a plausible explanation, reflecting on flat taxation as a political objective, not fiscal one. In addition, Keen et al (2006) believe that flat taxation belong to the political marketing, and is a signal of radical political doctrine change, from a social driven one towards a liberal one (example in Russia, Georgia, Ukraine and Romania).

Another major argument is that, the flat taxation would help to improve the revenue collection by reducing tax evasion and tax base expansion. Keen et al. (2006) show that after the first year of flat taxation, budget revenues (as a percentage of GDP) decreased in Estonia, Georgia, Romania, Slovak Republic and Ukraine, while they increased in Latvia, Lithuania and Russia. Interpreting these results, we think that there are major differences among these countries concerning voluntary compliance, customs, tax culture and moral and consequently the effects were not the same. Tax rate cuts can affect tax revenues through two main channels: affecting the tax base or compliance (Paulus et al., 2008).

Flat tax reform in Eastern Europe, have little in common with the original idea, because none of them meets all the requirements for a pure flat tax (from Hall and Rabushka's view), i.e. there are no taxes levied on savings, foreign earnings, capital gains, inheritances donations, and there are no exemption or deduction. Among all the countries Slovakia is closest to these requirements.

In terms of distributional measures literature divides countries in two groups: inequality, polarization, (relative) poverty and richness are rather high in Southern European countries (Greece, Portugal and Spain), whereas they are rather low in Continental Europe (Austria, Belgium, Germany, Luxembourg) and Finland. In terms of redistribution two different groups became visible: countries where progression is rather low (Finland, the UK, Germany, Austria and the Netherlands), whereas it is rather high in Belgium, Greece, Portugal, Luxembourg and Spain.

In response to the current economic crisis, the Governments of the EU member states have been adjusted the economic and fiscal targets. But, still key priorities are to ensure the sustainability of public finances in the medium and long-term and intergenerational equitable distribution of tax burden and costs. In short-term, the Government goals are: to support monetary policy, in particular the symmetrical operation of automatic stabilizers, in order to limit the volatility of the economy and to support the further reduction of inflation and interest rates. Macroeconomic policy coordination, (especially the income tax with that money one) is needed to correct macroeconomic imbalances and preventing sustainable worsening over the projection horizon.

If we consider measuring the gap between budgetary revenues and expenditures, we may assert that Great Britain and Ireland were the most affected economies in 2008, due to the fact that they are the European economies mostly depending on USA. The significant gap occurred in 2008, which was a year of financial and economic crisis, the budgetary expenditures increase with 4.35%, compared to 2007.

If a sustainable growth rate is visible and its benefits are more equitably distributed between individuals, an improved social cohesion, without increases in the redistributed budgetary resources results. However, the correlation between economic growth and cohesion is not always validated, the Baltic countries, Romania and Bulgaria recording a deeper inequality, even under substatial growth during 2008. Although, the absolute lower income increased, its pace was insignificant as compared to higher incomes, adversely affecting the objective of social cohesion (Socol et al., 2010).

Welfare state is a concept according to which the state has an important role in protecting and promoting economic and social wellbeing of citizens. It is based on equal distribution of wealth, opportunities and public responsibility, in absence of which a decent lining standard is not attainable (Lugo, 2007).

Moreover, there are emerging countries (the Czech Republic, Slovakia, Slovenia, Hungary, Poland, Estonia, Lithuania, Latvia, Romania and Bulgaria) trying to catch up more developed countries. Although hese economies have undergone a process of transition to a market economy, there are

significant differences in terms of national wealth management, as in the case of Hungary and Slovenia that have decided to embark on increased spending on social protection, while the Baltic countries have chosen to decrease these expenditures. It comandable that the latter ones have succeded to achieve higher growth rates. Even under crisis, employment rates remained rather stable in Slovenia and increased the Czech Republic.

Literature clearly offers different arguments for and against a tax reform reform:

- Pros of flat tax:
  - Reduce the tax burden on taxpayers;
  - Attracting foreign investments and creating jobs;
  - Increase employment;
  - Reduce "black" labor;
  - Creating a surplus that can be directed to investments, saving and consumption;
  - Discouraged the tax emigration;
  - Tax administration was simplified.
- Cons of flat tax:
  - In emerging countries, flat taxation is highly inequitable;
  - The tax burden significantly increases for low income taxpayers;
  - Flat taxation induces a polarization of incomes and an increase of social inequalities;

3. Empirical data

In this section, the feasibility of introducing progressive taxation in Eastern European countries will be considered. It is equally important to analyze the various social transfers in fighting poverty and reducing income inequality, since aggregate indicators that can sustain the welfare state may be different. Further, a number of examples are given to illustrate the welfare state.

Moreover, in the current economic global context, each country wants to maintain or to increase competitivity in order to attract as many foreign investments as possible and bring to surface the underground economy, objective that cannot be ackomplished by progressive taxation. Swaping flat taxation with the progressive one, shows an unsustainable tax reform and an execesive burden for taxpayers. Moreover, it would determine foreign companies to leave the country, given that the flat tax was the main incentive to invest.

The opportunity to levy progressive taxation will be discussed as compared to advantages and disadvantages of flat taxes.

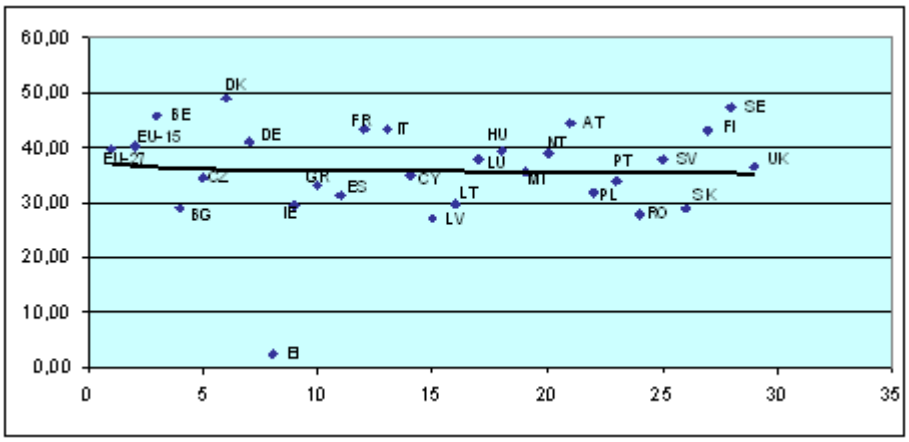
3.1. Tax burden

The economic and financial crisis, together with the fiscal policy measures enacted by the member states, has begun to impact on fiscal incomes. In 2009, the total collected fiscal incomes, including social contribution, in the EU-27, dropped to 39.7% of the G.D.P, by 0.8 percentage points compared to 2008, representing over 90 percentage points of the total fiscal income. The pace of fiscal revenues growth as well as the nominal G.D.P, slowed down in 2009 both in EU-27 and in EA-16

Denmark and Sweden reported the highest percentage of fiscal revenues in the G.D.P. for 2009 (49% and 47.40% respectively), approximately half of their G.D.P (Figure 1). In contrast, lower levels were generally observed in countries which have joined the EU since 2004 - it is a well known fact that the

level recorded in 2004 was the lowest during 1998-2009 (European Commission, 2010). Among these, Estonia exhibits the lowest value (2.30%), well under the EU-27 average (39.70%). These differences are, to a great extent, the result of the share the public sector has in the economy. Just before the extension of the EU in 2004, there was a great variety of tax rates, ranking from the highest 50% in the Northern countries and Belgium, to much lower rates in countries such as Ireland, Spain, Great Britain and Greece.

Figure 1: Tax burden as percentage of the G.D.P. for the EU-27 in 2009



Source: Eurostat (2010)

Among the countries that use the flat taxation, the Czech Republic (34.5%) emerges as having the highest tax burden in 2009. On the opposite side is Estonia (2.3%), with the lowest value of EU-27, in 2009. All the other countries recorded a tax burden between 27% and 29% , which is below the EU-27 average. Nevertheless, it is desirable that the tax burden to be correlated with the living standard of the population in order to reflect the reality concerning the purchasing power that ramains disposable for consumption, investments and savings. Based on available data, the viable solution is to relax taxation and expand the tax base to the point that supports economic growth.

We believe that the efficiency of a more relaxed fiscal policy depends on the credibility of the undertaken measures. If the decisions are perceived as being inconsistent, they will induce instability in the economic system, aggravated by a reduced private consumption. For example, it is possible that the decision to reduce taxation, will not automatically generate a significant increase in consumption (multiplier effect in the economy), provided that there is a state of pessimism or the access to credit is difficult. Therefore, fiscal multipliers tend to be rather below par and their value drops even more in times of deep economic recession.

3.2. Unemployment

The unemployment rate is an important indicator embedding both social and economic dimensions. Rising unemployment results in a loss of income for individuals, increasing pressure on government social benefits and a reduction in tax revenue. From an economic perspective, unemployment may be viewed as unused labour capacity.

The overall unemployment rate in the EU-27 reached 9.6 % in 2010 (Figure 3). As compared to the 2009 rates, the unemployment rate rose by 0.6 %.The unemployment rate rose in all the 27 EU Member States between 2009 and 2010, except Germany, Luxembourg, Malta and Austria. Countries as Belgium, France, Romania, Finland, Sweden and the UK also performed well, showing only moderate increases (below 0.5 %) between 2009 and 2010. While Estonia and Lithuania were among

the countries with the highest increases, they recorded decreases in unemployment in the second half of 2010. High increases were also perceived in Greece, Spain and Slovakia. Spain remained the country with the highest overall unemployment rate in 2010, at 20.1 %. The dispersion of unemployment across the EU-27 continued to increase during 2010. The lowest rate was performed in Austria (4.4%) and Netherlands (4.5%).

Long-term unemployment is one of the main concerns of policymakers. Apart from its financial and social effects on personal life, long-term unemployment negatively affects social cohesion and, ultimately, may hinder economic growth. In total, 3.8 % of the labour force in the EU-27 in 2010 had been unemployed for more than one year; almost half of these, 1.8 % of the labour force, had been unemployed for more than two years.

Unemployment benefits are quite generous in Belgium and Spain, both in terms of amount and duration. Belgium provides earnings related unemployment benefits paid at a rate of around 60% of previous earnings, with minimum and maximum daily amounts and a family component with dependant's additions conditional on the dependant not receiving income in excess of a specified amount. After 12 months reduced amounts are still payable. Means tested income support operates as an alternative to unemployment benefits for those not eligible and also as a top-up in cases where unemployment benefit is not sufficient to reach the levels of household income guaranteed by income support. In Spain, the earnings related unemployment benefit is paid at a rate of 70% of the previous earnings, with ceilings. It lasts for between 4 and 24 months, depending on contribution history. There is also a means-tested unemployment assistance scheme which lasts for 6 months with the possibility of extension up to a maximum of 18 months. There is no national social assistance scheme but instead, a series of widely varying regional schemes which are simulated in EUROMOD (Atkinson and Marlier, 2010).

As figure 2 shows, among the Eastern European countries that use flat taxation, Latvia recorded the highest level (17.10%) in 2010. Unemployment rates reached high values in Estonia (13.8%) and Lithuania (13,7%). On the other hand Romania, Bulgaria and Czech Republic have similar rates, around 6.8 percentage points.

The evolution of unemployment rates in these countries, during 2000-2009 has a similar trend. Between 2007 and 2008 the unemployment rate dropped to the lowest values in all the state. In 2009, the unemployment rate began to rise in 2010, Estonia reaching, for example, an unemployment rate of 18.7%. Thus, under the pressure of the global economic crisis that started in 2008 the unemployment rates are on an upward trend, reaching values close to those recorded at the beginning of the analysis.

Under these circumstances, the redistribution induced by unemployment benefits should be considered, since they may have perverse effects among the citizens that are on benefits.

Considering the level and the recent developments of the unemployment rate in Eastern Europe, in our opinion it is not recommendable to apply a progressive taxation, because the perception of a higher labour taxation can cause a serious increase in unemployment, a reduction of wages with direct and of the income.

Thus, on one hand the employer will try to avoid taxing a part of the employee wage by not declaring the whole amount, or to hire labour without legal documents. On the other hand, employees with average wages that exceed the minimum established as non-taxable will feel progressive taxation effects of a loss of income. They will try to make up for the loss, either simply quitting their job and live on welfare, or by addressing the labour market for a better paid job. These constant movements

trapped many employees since the beginning of the crisis affecting the structure of their demand. If they will not concede, they will have to change the demand for goods and services, by substituting certain categories of products or even giving up the goods with higher the price elasticity. Inevitably, this chain leads to changes in aggregate demand structure.

Figure 2: Unemployment in flat-tax countries

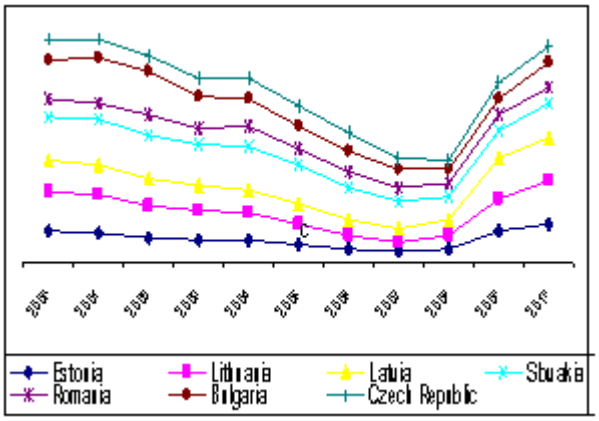
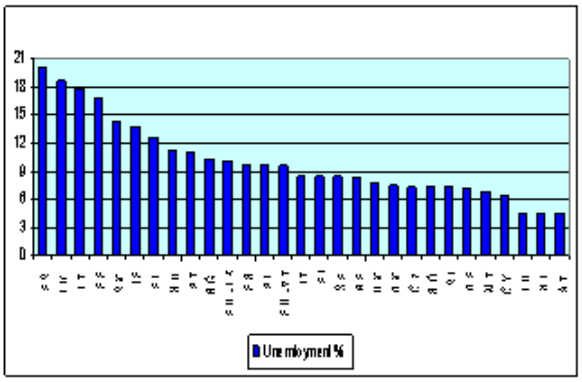


Figure 3: Unemployment rates EU-27 in 2010



Source: Eurostat (2010)

3.3. Income polarization

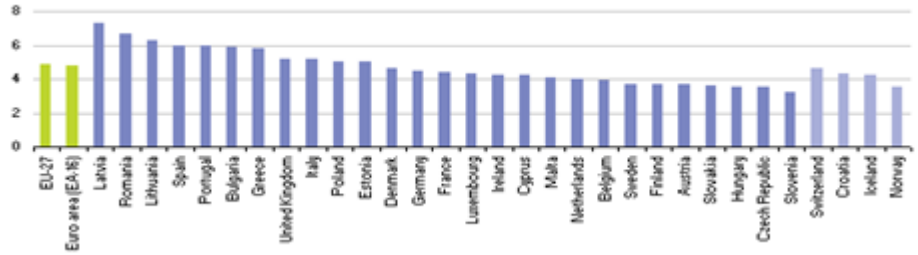
Governments cannot fight poverty and social exclusion without analysing the economic and social inequalities within the society. Data on economic inequality becomes particularly important for estimating relative poverty, because the distribution of economic resources may have a direct influence on the extent and depth of poverty.

Economic polarization leads to social polarization, characterized by discrimination, marginalization, segregation (residential, occupational, etc.), and perpetual poverty. Here the question of equal opportunities arises for the disadvantaged. There are wide inequalities in the distribution of income among the population of the EU-27 in 2009: 20% of the population with the highest disposable income received almost five times the income of 80% of the population with the lowest disposable income. This ratio varied considerably across the Member States (see Figure 4), from 3.2 in Slovenia, 3.5 in both Czech Republic and Hungary, to more than 5.5 in Greece (5.8), Bulgaria (5.9), Spain and Portugal (both 6.0), Lithuania (6.3) and reaching higher values in Romania (6.7) and Latvia (7.3).

Besides, different groups of the society feel differently the inequalities. One group of particular interest is that of elderly (retired) people, in part reflecting the growing proportion of the EU's population aged over 65 years. The pension systems can play an important part in addressing poverty amongst the elderly. In this respect, it is interesting to compare the incomes of the elderly with the rest of the population. A study underwent by Eurostat shows that across the EU-27 as a whole, people aged 65 and more had a median income which in 2009 was around 86% of the median income for the population under the age of 65. Hungary and Luxembourg were the only Member States where the income of the elderly was higher than the income of those under 65.

But, policies to reduce inequality and polarization go beyond the redistribution of income. It is necessary to promote policies aimed to increase employment. All these policies can contribute to the decrease of low-income population.

Figure 4: Inequality of income distribution 2009



Source: Eurostat (2010)

In Eastern European countries, in the absence of structural economic growth, the application of flat taxation can lead to polarization. We think that flat taxation is a form of liberalism, but in order to have positive effects the middle class must be predominant. From this statement we can draw the conclusion that a flat tax polarized the population in most Eastern European countries, since the middle class is prevailing. The data analysis of income inequality in 2009 shows that there are countries as Latvia, Romania, Lithuania and Bulgaria which have the highest levels of income inequality in the EU Member States. In these countries it is important to promote economic and social policies designed to improve the current distribution of income. The main mechanism to reduce inequality is redistribution of income and wealth through taxes, social contributions and social benefits. Basically, it is an area where policy makers are faced with the need to bounce on equity and efficiency, in order to diminish inequality and polarisation through redistribution. Under these circumstances, we believe that the appropriate tax rate sliding progressively on 2 or 3 brackets. Alternatively, another way to reduce income inequality may be increasing the flat tax, which would lead to higher taxation of wealth and high incomes. However, this increase would mean lower disposable wages, a drop of foreign direct investments, resulting, most likely, in a higher unemployment and inevitable lower living standards.

3.4. Living standard

Favourable living standards depend on a wide range of determinants, which may be divided into those that are income-related and those that are not. The income distribution within a country provides a picture of inequalities: on the one hand, inequalities may create incentives for people to improve their situation by intensifying work, innovation or acquiring new skills, while on the other hand, crime, poverty and social exclusion are often seen as being linked to such income inequalities.

In four Member States, namely Latvia (25.7%), Romania (22.4%), Bulgaria (21.8%) and Lithuania (20.6%), one fifth or more of the population was assessed to be at-risk-of-poverty. Among the EU Member States the lowest percentages of persons at-risk-of-poverty were observed in the Czech Republic (8.6%), Slovakia (11.0%), the Netherlands (11.1%) and Slovenia (11.3%); Iceland (10.2%) and Norway (11.7%) also reported relatively low shares of their respective populations at-risk-of-poverty.

In a study made by Anthony B. Atkinson and Eric Marlier (2010), the at-risk-of-poverty threshold is set at 60% of the national median equivalised disposable income. It is often expressed in purchasing power standards (PPS) in order to take account of the differences in the cost of living across countries. It varies greatly from about PPS 2 000 in Romania and PPS 3 000 in Bulgaria to more than PPS 11 000 in five Member States as well as Iceland, Norway and Switzerland, with the highest value in Luxembourg (PPS 16 000).

Advocates of the flat tax argue that the former communist states of Eastern Europe have benefited from the adoption of a flat tax. Most of these nations have experienced strong economic growth of 6% and higher in recent years, some of them, particularly the Baltic countries, experience exceptional GDP growth of around 10% yearly.

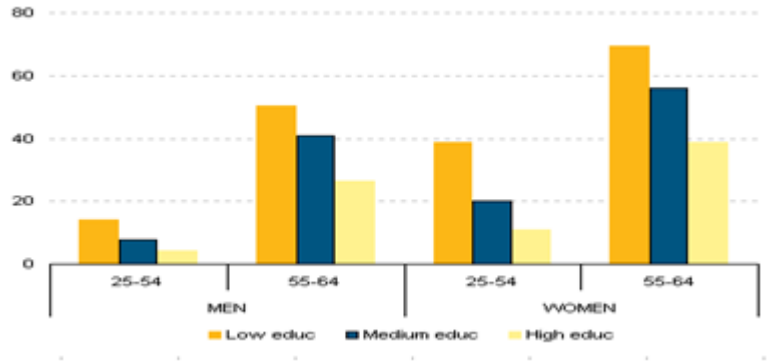
We consider that the living standard and welfare interrelated, since welfare implies a decent living standard at individual and community level as well. In addition, the living standard cannot be measured only based on quantifiable variables like income, social benefits, capital goods, but by also pursuing indicators like education level and labour.

3.5. Education and labour

Qualifications acquired through education are still the best insurance against unemployment, which clearly increases the lower the level of education attained. This characteristic is noticeable in almost every Member State in 2010, as the average unemployment rate in the EU-27 for those having attained at most a lower secondary education was 14.2 %, much higher than the rate of unemployment for those that had obtained a tertiary education qualification (4.9 %).

In all Member States women are more likely to be unemployed: in the Northern and Baltic countries the gender gap was 7 % in 2010, while in Malta, Italy and Greece the difference was more than 20%. The extreme cases are Lithuania, where the gender difference is only 3.6 percentage points, and Malta, where it reaches 35.4 percentage points.

Figure 5: Inactivity rates by sex, age and educational level in EU-27 in 2010



Source: Eurostat (2011)

3.5.1.1 Individuals with lower education are more likely to be excluded from the labour market (Figure 5). As shown above, the incidence of inactivity in the labour market is very gender-specific. Another determining factor is the educational level. Individuals attaining a low educational level are more likely to be inactive. In 2010, for the entire EU-27, the inactivity rate of individuals aged 25-64 who had attained a low educational level (i.e. less than lower secondary) was 37.3 %, as compared to 20.8 % for individuals with a medium educational level (at least lower secondary level, but less than tertiary) and 11.8 % for individuals with a high (i.e. tertiary) level.

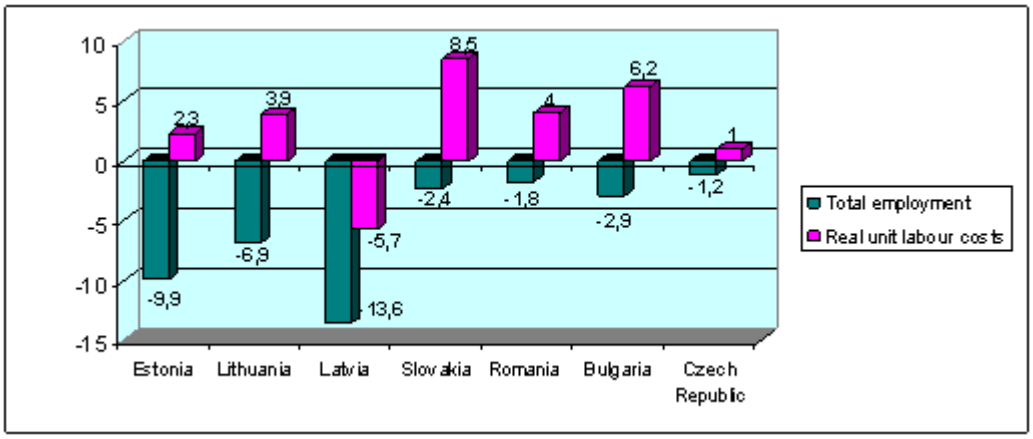
It is a well-known fact that, in the EU, the current tax structure discourages the creation of workplaces. The tax burden of the workforce increases its cost and affects the workforce demand in two ways: it encourages the substitution of the work factor with capital to a greater extent than the one determined by the technological change and it reduces the companies' profitability, leading to a decrease in workforce demand.

In all Eastern European countries that apply flat taxation, employment rates showed a negative evolution, in 2010 compared to 2009. Figure no. 6 shows that Latvia registered the most significant decrease of 13.6 percentage points. Making a connection with the situation of unemployment in these countries, we have already seen that in Latvia, in 2010, the highest level of unemployment (-17.10%) was recorded of the entire EU. In addition, there was a real reduction of labour costs (-5.7%), the only country in the group that shows negative evolution in this respect. In Estonia (-9.9%) and Lithuania (-6.9%) there are also concerns for the sharp decline of the employment rate in 2010 compared to 2009.

On the other hand, countries like Bulgaria (-2.9%), Slovakia (2.4%) and Romania (-1.8%) unemployment was not a subject of concern since a part of the labour force left the country and did not burden the market. In terms of actual labour cost, these countries reach the highest levels of growth, compared with 2009. Thus, Slovakia is the country where the unit cost of labour in 2010 increased by 8.5 percentage points compared with 2009. In the Czech Republic, both employment rate, and the real unit cost, shows a constant evolution in the year 2010.

To conclude, we can say that the tax reform it is not feasible in the now-a-days context since the negative trend in the evolution of workforce in Eastern European countries that apply the flat tax, is worrying. In the absence of related reforms made on the labour market, and active measures to restore employment, progressive tax rates can lead to reduction wages and thus disposable income may encourage illegal work.

Figure 6: Employment and real unit labor costs – annual % growth in flat-tax countries



Source: European Comission

3.6. The budgetary implications of ageing

Aside from the effect on economic growth, an ageing population also entails additional government expenditure in terms of public provision of age-related transfers and services. The fiscal impact of ageing is therefore projected to be substantial in almost all Member States; these costs will accelerate significantly over the course of the next decade. In the absence of policy changes, public pension expenditure is projected to increase significantly in most Member States because of intensive retirements and longevity.

As Figure 7 shows, public expenditure on health care is projected to grow by 1.4 percentage points of GDP in the EU by 2060 from a base of just under 7% of GDP. The increase in living standard conditions is an important driver of healthcare costs, affecting the demand for healthcare mainly through higher expectations on quantity and quality of care to be provided or financed by government.

public spending on long-term care is projected to increase by 1.1 % of GDP by 2060 due to the fact that the very old (aged 80+) will be the fastest growing age class of the population in the future.

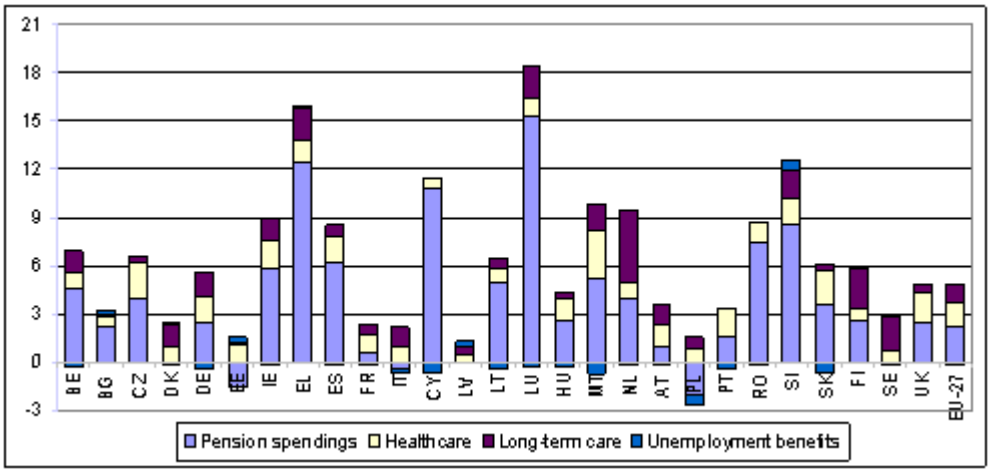
In the EU, expenditure on unemployment benefits is projected to fall from 0.8% of GDP in 2007 to 0.6% of GDP in 2060, though large fluctuations may be expected over such a long period.

Overall, on the basis of current policies, age related public expenditure is projected to increase on average by 4.3 percentage points of GDP by 2060 in the EU – especially through pension, healthcare and long-term care spending.

As we can see, the most significant impact on public spending will have the pension spending, which means that the ratio of population and pensioners will record alarming values. This negative influence is determined by population ageing.

In Romania pension spending is supposed to increase from 7.4% of GDP, which is the highest value recorded on this group of countries, projected for 2060. On the other side, it is Latvia, which doesn't foresee an increase for pension spending for 2060.

Figure 7: The budgetary implications of ageing



Source: Sustenability report in 2009

Expenditure on health care projected for 2060 in GDP represent the most important increase (+2.2% of GDP) in the Czech Republic, while in Latvia, the implications of ageing may affect healthcare expenditure only by 0.5% of GDP. „Long-term care" spending is influenced insignificantly by ageing, in 2060. At the same time, expenditure on unemployment benefits for 2060 is projected to fall, in comparison with 2007, for example in Slovakia (-0.6%), Lithuania (-0.4%) and Romania (-0.2%).

In general, the budgetary implications of ageing are higher in Romania, with an increasing projected in the public spending of 8.5 percentage points of the GDP, in 2060. On the other side, there is Latvia, with a favourable projection of the public spending increase, of only 1.3 percentage points of the GDP, in 2060, compared to 2007.

Romania is the most affected country because of the implications of ageing, especially because of the public pension spending. In this situation, we can recommend active occupation measures that would be able to stimulate the employees to extend businesses and hire more labour force, a harmonization of the pensioning age with the pensioning age of other developed countries from EU-27, promoting integration politics, especially for the older population using the example of the Northern countries.

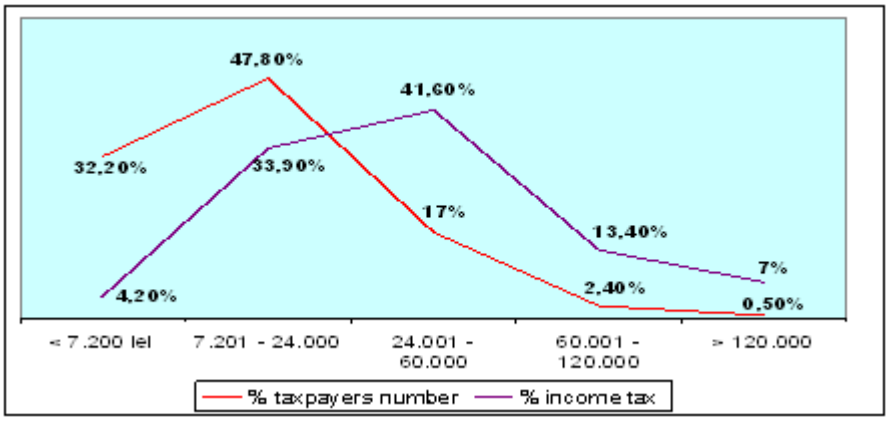
4. The case of Romania

According to the Romanian government, in the first two years of flat taxation, higher budgetary revenues were collected compared with 2004, black market labour was discouraged, and more incomes were declared. On the other hand, until 2009, a number of adverse effects appeared, among which the polarisation of income is the most concerning. The gap between the richest 20% of the population and the rest of the 80% of the population deepened (Figure 8).

Appendix 2 shows that, between 2000 and 2004, budget revenues increased in line with the average wage, while, with the introduction of flat tax of 16%, revenues grew faster than average gross wage.

In other words, ceteris paribus, a lower tax may lead to higher budgetary revenues. Countries using progressive taxation have a first bracket of income exempt from taxation in order to preserve the purchasing power and to allow an equitable redistribution.

Figure 8: Income tax in Romania 2009



Source: khris.ro

Figure 8 shows that taxpayers with small incomes (under 7.200 lei per year) representing 32.5% of the total tax payers have paid 476 mil lei in taxes, i.e. 4.2% of the total of collected tax. At the same time, taxpayers with bigger incomes (>120.000 lei) represent only 0.5%, but have paid taxes up to 801 mil lei, i.e. 7% of the total value. Approximately 1.2 millions of taxpayers (a total of 20%) assure basically the largest part of the collected taxes (a total of 62%).

Income inequality is not so high in Romania comparative with other countries; it doesn't exceed the limits accepted generally in the developed economies. Nevertheless, the polarisation is important since half of the population live on benefits.

5. Conclusions

Many countries in Eastern Europe have chosen flat taxation in order to attract more foreign investments. But, in most cases, it was a political measure meant to mark a change in the economic doctrine, and ignoring the economical, cultural, behavioural specificities of these countries. Therefore, the effects of flat taxation are differentiated. Countries like the Czech Republic enjoyed the positive effects of flat taxation: unemployment (6.7%) is sustainable, the incomes gap (3.5), in 2009 is bellow average, the tax burden (34.5%), in 2009 is under the level of EU-27 (39.7%), the percentages of persons at-risk-of-poverty is quite small (8.6%). As well as, Slovakia recorded positive effects of flat

taxation: the tax burden (28.9%), in 2009 is under the EU-27 average (39.7%), the inequality of income distribution (3.6%) is the lowest, in 2009, the cost of ageing those not exceed the limits and it is observed a lower percentages of persons at-risk-of-poverty (11.0%).

By contrast, there are countries in which flat taxation does not generated the expected benefits. Latvia recorded an unsustainable unemployment (17.10%), in 2010, even if the tax burden (27%) is under the level of EU-27, inequality of income distribution records the highest level (7.3%) of EU, in 2009, the poverty risk is reported at about 25.7%, in 2009, being the highest value among the EU member states. In answer to the negative effects of flat taxation, Estonia and Lithuania have recorded the highest increases of unemployment rate, in 2009. Also, Estonia (-9.9%) and Lithuania (-6.9%) registered alarming diminishings of the labour occupation level, in 2010. On the opposite side, the tax burden in Estonia (2.3%) has the lowest value of EU-27, in 2009.

As long as I am concerned, the progressive taxation is feasible in countries where the income inequality reaches worrying levels, owing to the absence of a structural economic growth. Consequently, the author takes into account the countries without an ordinary percentage of people at-risk-of-poverty. On the other hand, the flat taxation is usefull in countries where tax burden is under the level of EU-27, the unemployment is unsustainable and the employment rates showed a negative trend. Beyond the shadow of a doubt, flat taxation will generate positive effects only if the middle class is predominant.

Acknowledgments

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Appendix

Table A.1 Flat tax in EU-27

Countries	Adoption year	Flat tax of personal income %		Flat tax of corporate income %	
		2009	Before the reform	2009	Before the reform
Estonia	1994	26	16-33	21	35
Lithuania	1994	24	18-33	15	29
Latvia	1997	25	25 and 10	15	25
Slovakia	2004	19	10-38	19	25
Romania	2005	16	18-40	16	25
Bulgaria	2008	10	20-24	10	10
Czech Republic	2008	15	12-32	21	24

Source: Eurostat

Figure A.2 The evolution of income tax revenues vs. average gross wage evolution in 2000-2009

Source: khris.ro

Dismantling a weak state
The crisis as a pretext for even more neoliberalism in the Romanian economic policies

Dan Cărămidariu

The paper presents the evolution of Romanian economic policies shortly before and during the financial and economic crisis. It starts by pointing out key data on the Romanian economy in 2008 and focuses on the different action plans the Romanian governement has drawn and put into practice in 2009 and 2010. The paper analysizes especially the general cut-off of wages in the public sector, the raise of taxes (2010) and their influence on consumers' demand and the evolution of Romanian GDP in 2010 and 2011. At the same time, it focuses on the evolution of governement investments in 2010 and 2011, the tool officially proclaimed as Romania's magical key for getting out of the recession. The paper shows that although such a raise in public investments was a dominant element in the governement's economic discourse, in fact public investments decreased in 2011. Based on the fact that the austerity measures, combined with the raise of public investments, were - according to mainstream economists - the best possible policy mix for fighting the crisis, the paper comes to the conclusion that this policy mix has more negative than positive effects for the unreformed Romanian economy, as long as a true raise of public investments cannot be revealed. It shows that the crisis was used as a pretext for implementing Neoliberal principles in Romanian economic thought and policy as well, for pushing forward the dismantling process of the Romanian state.

Keywords: Response to Crisis, Neoliberalism, Fiscal Policy

1. Introduction

In the first two decades after the fall of the communist regime the Romanian economy has known three different phases. I hereby take into account the following phasing (Jivan et al., 2011), which is considered to be of significance:

(1) 1990 - 1990, the first phase characterised by the convulsions of the transition, respectively by the two major shocks from 1990 - 1992 and 1997 - 1999, as well as by a weak and unhealthy economic growth between 1994 and 1996;
(2) 2000 - 2008, the second phase, a phase characterised by sustained economic growth, mostly induced by the fact that Romania entered the irreversible track of integration into the Western political, economic and military circle of influence and which corresponds to the end of the transition;
(3) 2008 – present, the third phase, of the double crisis and, in other words, of the Romanian economic crisis, an internal crisis, triggered and enhanced by external evolutions.

Despite a short period of economic growth and recovery between 1994 and 1996 the Romanian economy in the first post-communist decade was characterised by the successive crisis of the transition to market economy, marked by inflation, unemployment, a slump in production and, in general, by a stark dissolution of the state's authority on all levels. However, during this decade the democratic political regime installed after 1990, which has recorded its first alternance of power only in 1996, managed to adopt laws and regulations which can be criticised from various points of view, but which

outlined the conditions under which a market economy was formed in a country where for the past 60 years there had been exclusively dictatorial regimes which aimed at and succeeded in completely controlling the economy.

Even if the governments which alternated in this period were not capable to meet the deadlines for the transition to market economy suggested in 1990, they applied at least until 1996 a concept rooted in the Romanian belief and economic policy of approaching economic policies in a traditional manner with strong left-wing influences. Nevertheless, after 1997 the obvious stop-and-go character of this policy (Hunya, 1999) having failed, the new centre-right government was forced to resort to a so-called shock therapy, of neoliberalist inspiration, which lead to the massive impoverishment of the population. Thus, the disparity between Romania and the European average was yet again increased. This therapy recorded, however, some success such as launching the process of privatisation in the fields of industry, agriculture and in the banking sector and starting the negotiation to join the European Union in 2000.

Afterwards the Romanian economy entered a new phase, a phase of sustained economic growth, the only economic policy which the two governments of that period based on was actually the one imposed by the imminent adhesion to NATO (2004) and the accession to the European Union (2007). It is obvious that the Romanian governments continued the reforms in economy and society by relating to this sole objective, that is the European Union integration. Thus, the governments made it seem that some conditions and criteria were met, so that the accession to the EU could take place without major hurdles, and they entirely accepted the privatisation of state ownership in economy, be it in the banking sector or in the field of industry, energetics or tourism.

At the same time, despite the existence of the necessary legal framework, they proved to be very resistent when the European Union demanded they should fight against corruption in the legal and administrative system and introduce reforms in the legal system aligned to the principles of the state of law, which all countries members of the European Union have in common, as shown by Gallagher (2010). Moreover, after 2005, when Romania's accession to the European Union on the 1st of January 2007 had become a certainty, the Romanian government promoted a relaxed tax and budget policy, thus leading to an unjustified rise in public expenses, especially after 2006.

Therefore this period is characterised by a dangerous relaxation as the politicians and the society in general forgot the slight coherence and autodiscipline they proved to have in the period before the accession to the European Union. After the 1st of January 2007 the capacity to control of the international financial-banking institutions and that of the European Union dropped significantly.

The unwise tax policy promoted by the Călin Popescu Tăriceanu government in the second part of his mandate (2006 - 2008) lead to a sharp rise in consumption and jeoperdized Romania's macroeconomic balance. As a result, when the country started to be affected by the international financial and economic crisis, in the last months of the year 2008, "the combination between the deficit of the external balance, the budget deficit and the limitations imposed by the crisis on some of the financial flows became unsustainable", as shown by Murgescu (2010).

There is a heated debate (Voinea, 2009; Fota, 2009; Maliţa and Georgescu, 2010; Murgescu, 2010; Popescu, 2011; Vasilescu, 2011) regarding the causes underlying the economic crises in Romania in the years 2008 – 2011. On the one hand, some authors believe that the crisis was partly imported, especially by the reduction in external demand, as well as by the reluctancy of foreign investors and their limited possibilities. On the other hand, the crisis was due to the setbacks of governmental policies during the years 2007 and 2008. It was also pointed to the fact that the causes of the crisis in

Romania should be looked for exclusively within the country, international events being just the trigger of the situation and nothing more.

I tend towards this second opinion, considering that actually the Romanian crisis is not a temporary economic crisis, but a structural crisis, one related to the lack of vision. It is a crisis of committing to reforms, a management crisis. Beyond this, it is my opinion that for Romania the global economic crisis was and still is used as a pretext to implement neoliberal principles inspired by the Chicago School and the Washington Consensus, both in practice and in Romanian economic thinking, with a view to reach an objective which was not publicly assumed, that is the dismantling of the Romanian state. The reason behind the government's explanation of this course of action is the fact that the state has to cut its costs, turning the target of budget deficit into a primordial objective and imposing on the population and on the enterprises a new set of maximum austerity measures, which are hard to imagine in any other member state of the European Union.

Therefore, this paper attempts to demonstrate that the mixture of economic policies implemented in Romania with a view to combat the effects of the recession are actually intented to implement the principles of neoliberalism in this country, as they were envisaged 40 years ago. Taking into consideration the fact that Romania is and will remain far behind developed Western European countries, having as a fundamental criterion prosperity, in its broad meaning, that is not only the strict economic dimension but also the quality of life and the way in which institutions work, the current policies cannot lead to another outcome but the one of dismantling an already weak state.

2. Romania's economy between 2008 and 2011. Main data

For a better perspective on the evolution of Romanian economy between 2008 and 2011 I will use a series of data briefly shown in Table 1 based on the information offered by the National Institute of Statistics and Economic Studies in Bucharest and by the National Office of the Registry of Commerce under the Ministry of Justice.

I will make short reference to some of the information in Table 1, which I consider to be the most relevant. Firstly, one cannot leave unnoticed the negative dynamics of the Gross Dometic Product in Romania. If in the year 2008 the economic growth recorded a considerably strong start in respect to the European average and even to the Central and Eastern European one, of 7,1 percent, the year 2009 brought a dramatic drop of 7,1 percent, one of the highest in the European Union. Despite some of the severe conditions which continued to exist in 2010 the economy in Romania dropped with only 1,2 percent of the GDP, while in 2011, according to the information at this moment (January 2012) it recorded a modest recovery of maximum 1,5 percent in the first six months of the year. However, in the third trimester, due to external factors, especially to the developments which exceeded expectations in the field of agriculture, Romania's head start rose to 4,4 percent of the GDP thus being one of the highest in the European Union. Despite all this, one has to note that this rise will be severly reduced in the last trimester due to the unfavourable situation in Europe. Thus the forecast for 2012 should be made with extreme caution. The government in Bucharest drew up the state budget for the year 2012 starting from an economic growth of between 1,8 and 2,3 percent of the GDP.

The strenuous development of the inflation rate which decreased in 2009 in comparison to 2008, but increased with over 6 percent in 2010, is also to be noted. This increase was mainly due to the negative impact of the VAT increase with 5 percent, from 19 percent to 24 percent, on the 1st of July 2010. Furthermore, there is also the fact that the public debt doubled, both in nominal and in real value, from

almost 20 percent of the Gross Domestic Product in 2008 to almost 40 percent of the same indicator in the first semester of 2011.

Table 1: Development of some economic indicators in Romania between 2008 and 2011

Indicators	**2008**	**2009**	**2010**	**2011 (1st semester)**
Public debt (billions RON)	100,6	136,5	182,5	202
Debt % of GDP	19,5	27,8	35,5	39
Economic growth	+ 7,1	- 7,1	- 1,2	+ 1,5 (estimated)
Inflation (%)	7,8	5,6	6,1	4,85
Credit value (billions RON)	184,5	198,9	207,9	217,8
Value of outstanding credit (billions RON)	6,2	5,9	13,9	19,74
Exchange rate RON/€	3,579	4,2282	4,2848	4,2353
Exports (billions Euro)	33,7	29,03	37,4	22,01
Number of unemployed (thousands)	568	731	714	741
Employed population (millions)	9,60	9,02	9,05	9,07
Number of closed companies	18.463	57.041	49.092	13.290
Number of dormant companies	10.901	127.129	139.139	22.062
The price for one gram of gold (RON)	67,68	104,18	145,35	178,65

Source: National Institute of Statistics and Economic Studies, National Office of the Registry of Commerce

I should also emphasise that the amount of outstanding credit of the population as well as those of economic agents of 6,2 billions RON in 2008 tripled in the first part of 2011 reaching 19,74 billion RON. This matter of fact points without doubt to a serious worsening of the solvency in the Romanian economy. The course of the national currency in relation to the common European currency is similar to that of all currencies in Central and Eastern Europe, including that of the more powerful Polish zloty, with the remark that in the last part of the year 2011 the Romanian leu proved to be very stable, its depreciation in relation to the Euro being smaller than the one of the Hungarian forint for example. One can also notice the unfavourable development in the number of unemployed, as it increased by almost 200 thousand people in the context in which the employed population decreased with over 500 thousand, on account of both the natural negative rate of natural increase in Romania's population and of the fact that the emigration phenomenon continued and grew.

I can also mention a positive development in the economy of Romania, that is the favourable dynamics of exports. According to Eurostat[1] data, Romanian exports were rated the best in the European Union in terms of their development. Thus between 2008 and 2011 an increase of 10,8 percent was recorded, from 33,7 billion Euros to 37,4 billion Euros, this head start being remarkable in the context in which export rose in only 8 of the 27 member states of the European Union, while the rest recorded decreases ranging between 0,1 in the Netherlands and 19,3 in Finland. This proves that

[1] http://epp.eurostat.ec.europa.eu/newxtweb/, as of 22.12.2011

the Romanian economy has the capacity to overcome the recession, but it also stands proof of its dependency on the Western markets, especially on the German, Italian, and French one as more than two thirds of the Romanian trade is intra-community.

Finally, we emphasise the fact that in the year 2009 and 2010 the number of companies which were closed respectively which became dormant recorded a boom. The underlying explanations are not only the worsening of economic conditions, especially the low demand in some sectors (for example, in constructions, real estate, small trade), but also the worsening of taxation rules in 2009 by the introduction of a lump sum taxation of 500 Euro/trimester for all economic agents and dropping the facilities awarded to micro-enterprises. Moreover, other causes which led to this unfavourable development should be related to the harshening of lending conditions as well as to the continuous postponement of some payments for works done between 2004-2008 by private construction companies whose beneficiaries were the state or the local administrations thus leading to a weakening in the construction sector. This sector had been one of the stars of the economic increase in Romania between the years 2000-2008 along with the automotive industry, textile industry, wood manufacturing, energy industry and others.

3. Fighting the crisis through austerity measures

Although the liberal government which lead Romania until December 2008 set up a plan to fight the recession through measures of fiscal stimulation and measures of support in some important sectors, such as construction sector, through public investments, the coalition government between the Liberal Democratic Party and the Social Democratic Party decided to drop this plan, considering throughout the year 2009 that Romania is not and will not be affected by a crisis, and the recession gradually became worse from one trimester to the next.

The first problem which this government had to face resulted from the exceedingly relaxed taxation and budget policy of the former government. This eventually developed into a state crisis of liquidity solved by an agreement between the Romanian government and the National Bank of Romania on the one hand and nine foreign banks present in Romania, the European Commission and the International Monetary Fund on the other hand. According to this agreement signed in Vienna in March 2009 the foreign banks committed to offering the financing needed by Romania, that is by the state and the economic agents, and to not withdraw their funds from this country despite the liquidity problems existing in their own countries of origin. At the same time, the European Commission, the International Monetary Fund and the World Bank agreed to offer Romania a financial help amounting to approximately 20 billion Euros, in instalments. The government of Romania mainly used the money to pay off its current debt, especially for the payment of salaries in the public sector and of the pensions in the state social insurance system.

Nevertheless, according to the international financial-banking institutions and the European Commission the awarded financial help is conditioned by taking measures regarding cuts in public expenses, strenghtening financial discipline, rendering partially or totally state owned companies efficient and finally by improving the way in which budget revenues are collected. In this respect, there is Law no. 329/2009 regarding the reform of public authorities and institutions, the rationalisation of public expenditure, the support offered to the business environment and the compliance with the frame agreements with the European Commission and the International Monetary Fund. However, this law came too late, although its purposes matched the urgent necessity of the Romanian economy of 2009 and the need for reform by making the state more efficient. These goals,

listed in art. 1 of the above mentioned law, were as follows: reforms within public authorities and institutions, the reduction in staff expenses in the public system, the ban on the cumulative pension system applied to people employed in state institutions, the implementation of various measures regarding the financial and budgetary discipline of public enterprises, organisations and national companies and of trade companies whose sole shareholder or majority shareholder are the state or its administrative-territorial units, in other words measures aimed at sustaining the business environment with a view to overcome financial difficulties and relaunch the trade flow.

These above mentioned measures mainly implied that some fiscal bonus would be awarded in case profit was reinvested, only that according to the law the conditions imposed in order to benefit from this facility were extremely harsh, so that the effect of the law was insignificant. Especially because by modifying fiscal regulations in the spring of 2009 the government introduced a lump sum taxation of 500 Euro/trimester for all trade companies and cancelled a series of facilities regarding fiscal deductability especially regarding the acquisition of vehicles and the fuel consumption, measures which I have already mentioned.

In the same year, by passing Law no. 330/2009, the government applied its vision regarding the uniform remuneration of staff paid from public funds. On the one hand, this normative act abolished any discrepancy in the income of state employees, which had cumulated along the two postcommunist decades, but, on the other hand, the analysis of the text of the law reveals that there has been an unfair levelling off of certain key categories of state employees, such as the professionals employed in the field of education, health and public order.

I also have to mention in the same context the adopting of a new normative act regarding the state social insurance system, i.e. Law no. 263/2010 regarding the uniform public pension system by which the parallel existing pension system for various social and professional categories was dissolved, the pension age for women rose from 60 to 63, while the way in which the pension is calculated was changed in such a manner that the ones who retire in the next years should benefit from at most equal pensions to those calculated for those who retire before this law comes into effect, in some cases smaller.

I would also like to mention here the new healthcare law project according to which the public healthcare system would be considerably reduced by the introduction of private health insurance companies. This measure, which at the moment is in its project phase and has to overworked, corresponds best to the neoliberalist principles regarding state reforms which the Romanian government is trying to implement. This kind of initiative might have its benefits in respect to avoiding to misspend public funds in the field of healthcare, inadequate remuneration of employees from the healthcare system, the modernisation of the system's infrastructure and the quality of the medical services. It might also bring an end to the continous exodus of the healthcare professionals from Romania, although at this point the advantages of this law cannot be clearly seen due to the way in which the law project was presented. On the other hand, by dismantling the public healthcare system in this context of poverty of a population in crisis it becomes clear that the access to healthcare of numerous social classes will be considerably reduced.

In the circumstances in which the financial help offered by the international financial-banking institutions and by the European Union was used in the year 2010, as I will further establish, for purposes others than those with multipling potential in the economy the Romanian government was forced to impose austerity measures without precedent in the European Union. In conformity with Law no. 118/2010 regarding some of the measures necessary to regain the budgetary balance and with

the Emergency Ordinance no. 58/2010 regarding the new Fiscal Code the salaries of all state employees were reduced by 25 percent while the VAT recorded an increase of 5 percents, from 19 to 24 percents, thus becoming one of the highest in the European Union. According to the initial plan, the government also intended to decrease state pensions by 15 percent, however the Constitutional Court of Romania ruled this measure as unconstitutional so that the government was forced to increase the VAT in order to restablish the budgetary balance.

Subsidiary, the government started the reorganisation of the state system by dismissing staff, especially within the Ministry of Internal Affairs and Administration, by blocking all available vacancies and by not allowing the employment of extra staff as well as through cost reduction achieved after closing some public establishments, especially town and city hospitals, respectively they became care homes for the elderly.

The immediate consequence of the pay cuts and of the VAT increase was the reduction in the final consumption of the population consisting of 1,4 percent as compared to 2009. A slight rebound was registered only in the second half of the year 2011.

There are several points of view regarding the necessity and the timing of these measures. A first opinion was expressed in the sense that the measures would not have been necessary if the Romanian government had taken in 2009 some less drastic measures to reduce and rationalize public expenses. According to another opinion no measure should have been taken, as these measures only worsened the overall economic climate in Romania. I tend towards the first opinion but would like to emphasize that taking such less drastic measures in 2009 would have been enough only if in the same year public expenditure behaviour had not been so irresponsible. This behaviour was due to the presidential elections by committing to useless spending (for example the construction of several sports halls in the rural area) in relation to the urgent needs of the public infrastructure, of the education and health care system, of employment or agriculture. Moreover, I consider that in the studied period, respectively in the years 2009 and 2010, the government could have avoided the pay cuts in the public sector and the VAT rise if it had been able to access more efficiently European funds as throughout this whole period the absorbtion of these funds was extremly weak. It was only in the second half of the year 2011 that one could notice a slight improvement of this situation.

The measures regarding the reestablishment of the budgetary balance and ensuring a macroeconomic stabilty include also Law no. 69/2010 regarding fiscal and budgetary responsibility. This law set the legal framework of balanced budgets and determined highly prudent principles for drawing up fiscal and budgetary policies. In spite of this, the Romanian government rooted from a dogmatic point of view in the principles of neoliberalism and those of the Chicago School did not comply with this law when it amended the state budget for the year 2011, there being all prerequisites that the provisions of these law would be breached again during the year 2012, if, despite its promises to the International Monetary Fund and the European Commission, it raises salaries and pensions in the second half of 2012 thus succumbing to electoral pressure.

The new law regarding social assistance (Law no. 292/2011) should be analysed in the same way. By this normative act the entire national social security system was reorganised with a view to substantially reduce the amount of benefit received in Romania and the total number of citizens who receive one or the other type of benefit. This kind of normative act should produce long-term positive effects, but the short-term and medium-term consequence will be that of increasing poverty among specific social categories, especially in the rural area.

These measures have to be supported by state efforts to withdraw from the economy through the privatisation of state shares, for example in the energy industry or in that of air transport, respectively efforts to make the management of state companies more efficient, for example in railroad transport and in the energy industry. Privatisation proves extremely difficult in respect to the Romanian rail system under the circumstances in which the state companies in this field are incurring extremely high losses caused by an inefficent administration but also by the existence of alleged criminal acts in the management of these companies.

The discrepancy between imposing some drastic austerity measures on some large categories of the population and the continuance of the inefficient and poor management of partially or totally state owned companies, which cause high losses, should also be emphasised.

It is my opinion that the drastic austerity measures imposed by the Romanian government on the population in 2009 and especially in 2010 have, beyond the momentary need to reestablish budgetary balance and to ensure macroeconomic satbility, a long-term objective comprised by the executive in the phrase *state reform*. This reform is implemented in conformity with some programmes[2] or principles of the government, of the presidential administration or of the main governing party, the Liberal Democrat Party, in the sense of weakening the state apparatus and its administrative capacities, of withdrawing the state from economy through privatisation, of dismantling a social spiral where, even after 1989, the role of the state was at least very important if not crucial.

The normative acts promoted at the beginning of the financial and economic crisis and until present have in view not only a so-called better organisation of certain important institutions and in some significant fields but they also attempt to remove the state from its position as a major agent in economy and society, however without taking into consideration that the Romanian society was traditionally and will remain one in which the state plays a significant role and is of major importance. This statement may easily be contradicted in the sense that Romania needs less and not more state, because many of the problems faced when departing from socialism to capitalism were caused exactly by the existence of a weak, unreformed, poorly managed and in many situations corrupt state apparatus. The final part of this paper refers to this apparent contradiction.

4. The vision of the Romanian government on the economic stimulation. Public investments in 2011

The government which adopted the measures analysed in the previous chapter considered that, at the same time with imposing this austerity difficult to bear by the population, it also understood to apply a wide programme of economic stimulation based first and foremost on public investments. Therefore, according to official information from the government[3], there are no more than 21 programmes through which the economy and the business environment is sustained by the executive, except those of direct public investments in infrastructure. I will not explain them all as they are not all of interes for the purpose of this paper but I will list them:

(1) the programme *First House*, whereby the state supports housing acquisition for certain categories of people by garanteeing the loans they might obtain from the bank under the

[2] E.g. the government programme of Emil Boc's cabinet from December 2009, the various reports of some presidential committees (regarding demography, education, healthcare) or governmental (regarding competitivity ad industrialisation)
[3] http://www.guv.ro/programe-guvernamentale__l1a115343.html, as of 22.12.2011

condition that it is the person's first housing acquisition. Voinea (2009) suggested that the programme is a partial failure, having nothing to do with Romania's recovery from the recession;

(2) the programme of thermic rehabilitation of buildings through government guaranteed loans;
(3) the *Mihail Kogălniceanu* programme for small and medium sized enterprises regarding the subsidisation of maximum 70% of the interest rate of the loan, but no more the 6,5% per year of the sum of money used for the awarded credit line;
(4) the programme for the support of the set-up and development of microenterprises by young entrepreneurs who are exempted from the tax for setting up a company and who can also easily access a financial help of up to 10,000 Euro for the development of their business and can obtain government guaranteed loans, being afterwards exempted from paying the social contribution for maximum four employees;
(5) the programme for the development of entrepreneurial skills among young people and the facilitation of access to financing; for this purpose workshops were organised at the end of which some of the business plans drew up by the participants can be selected for financing from public funds;
(6) the programme regarding the attraction of foreign and local investments by drawing up and implementing state help schemes for certain foreign investments in compliance with the Europian Union regulations;
(7) the implementation of the new civil code from the 1st of October 2011, without having made a detailed impact study of this new frame-law, as this new law replaces not only the old civil code of 1864 but also the commercial code of 1887 which led to a delay in the court settlement of litigations;
(8) the programme for the stimulation of the renewal of the national auto park, through which the acquisition of new vehicles, including tractors, enjoys a support from the state amounting to 3,800 lei for each old squashed vehicles;
(9) modifications of the fiscal and accounting law without taking into consideration certain increases in fees and taxes throughout 2011;
(10) the online national electronic payment system of fees and taxes by using the banking card;
(11) support for the companies which offer jobs to unemployed people and thus create new jobs by according modest fiscal facilities to companies which employ jobless people over the age of 45 or to unemployed people who are single parents in monoparental families or to those with disabilities;
(12) the support for female entrepreneurship by organising classes throughout some of the major cities;
(13) the programme *Green House*, by which the state finances the process of fitting solar panels or photovoltaic panels by natural persons on their own homes;
(14) the new vision of the employment code according to which the number of valid labour agreements should have risen and thus it should lead to reducing work on the black market; nevertheless this did not happen;
(15) the governmental support programme regarding the award of grants and government guarantees, respectively the award of a modest support for young people who set up farms;
(16) new regulations in the field of financial support for heating;
(17) the governmental programme for the support of pensioners *The solidarity basket*;
(18) the new aspects of Law no. 1/2011 regarding national education; however, despite the fact that Romania is in need of trade and crafts schools, these were not set up again;
(19) policies and public programmes for the Roma minority;
(20) the Danube Region strategy – European instrument for macro-regional cooperation;

(21) the project the *Danube Strategy* for the period 2011-2015;

Compared to the stringent development needs of Romania, respectively to the serious recession faced by the Romanian economy during 2009 and 2010, these measures, some of them with a positive character, represent without doubt too little. They can offer a specific support in some fields, some of them with real development potential (such as agriculture, green energy), but they lack overall vision. In my opinion, this package lacks integrating visions regarding ways in which to overcome the recession, to record increases and to bring the economy in Romania back on the development track with a view to reduce the major discrepancy to the European average.

If we were to analyse also the public investments[4], we would easily notice that beyond the enumeration of billion-Euro projects the actual level of public investments is relatively low and it can under no circumstance strongly stimulate the economy by supporting global demand.

Therefore, according to the ESA 95 methodology of the European Union, public investment have dropped in the first semester of the year 2011 to 1,6 percent of the GDP as compared to 4,3 percent of the first semester of the year 2010 or 5,8 percent for the year 2010. Consequently, the new investments financed and received by the state in the first half of the year 2011, which should have stimulated the economy, actually dropped almost 60 percent as compared to the same period in 2010. This situation demonstrates that mostly the government has done nothing else but pay outstanding bills from the past years related to investment whose contribution to the GDP was not quantified in those years.

Based on all the above we consider that for the time being the Romanian executive does not have in view a real stimulation of the economy through measures of supporting global demand, respectively through efficient public investments, modernizing infrastructure and supporting some sectors of strategic importance for the national economy, its programmes being specific and producing effects which are either modest or hard to quantify without the possibility of multiplication and engaging real economic flows.

5. Conclusions

This paper shows, without going into technical details, that the measures adopted by the Romanian government in the context of and with a view to fight the economic recession from the years 2009 and 2010 had and have also another purpose. The intention behind imposing on the population an austerity package which was hard to bear was that of adopting normative acts which tend to minimise the role of the state in the economy and in the society by reorganising some of the public services (defence, public order, justice, education, health care) and to withdraw the state form the economic market by continuing the privatisation process, previously considered closed.

At the same time, the public investments acclaimed as the key to overcoming the crisis did not record an increase but on the contrary there was a decrease, but the absorbtion rate of European funds continued to be low.

The governance programme of the Democratic Liberal Party, the various policy documents of the presidential administration and of other institutions form the central public administration make obvious reference to the state reform by which the state would no longer play a significant role in the economy and in the society.

[4] http://www.guv.ro/masuri-de-stimulare-economica-sinteza__l1a109809.html, as of 22.12.2011

From this point of view, it is our opinion that the Romanian economic and political thinking is still behind the development of the Western thinking. If the current world and European economic crisis is caused also by the indisputable victory of neoliberalism, respectively an extreme neoliberalism, then it means that it has to be reconsidered. This, however, does not happen in Romania, a country which in the past 20 years from the fall of the communist regime seems to be more determined than ever to apply the principles of neoliberalism in economy. Budgetary austerity, state withdrawal, decimation of public institutions, privatisation of the health care and education system are neoliberal principles. Nevertheless, Romania applies them at a historic moment when it has no need for such a situation, but when the need for growth and development, of reindustrialisation and strong economic headstart should prevail over the worshipping of nominal objectives integrated in the obsession of a low budget deficit. Certainly in Romania the entrepreneurship, individual responsability, competitivity - as inert elements of capitalist order – are extremely underdeveloped. However we are reserved towards the assertion that they might develop extremely well if the public system would be demolished, which in the case of Romania means a conviction to poverty, underdevelopment and emigration. The vicious circle has to be broken without doubt, however the problem has to be solved in different ways. Responsabilisation has to start firstly within the central administration through transparency, efficiency, elimination of useless costs. Secondly, the state should not give up its own tasks, in the context in which the need for development continues to be high. Thirdly, the education has to be reevalued and the public investment in education should be pushed forward. This paper does not attempt to draw up a catalogue of alternative solutions, its goal is just to point out that at present the economic policies applied in Romania are based on wrong principles, they have unbeneficial medium and long-term effects and Romania's conviction to underdevelopment becomes clearer and clearer.

Romania is not in the same situation as Greece, the level of public debt can be held under control, the risk of certain macroeconomic side slips has been reduced. Therefore, the implementation of certain principles and concepts whose effect is the dismantling of a state already eaten by a strong dissolution of the authority after 1989 is profoundly wrong as it implies that certain much more significant social-economic goals are sacrificed and the price paid is that of continuous poverty which leads to heavy depopulation.

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Corporate tax harmonization in the European Union

Zsófia Dankó

The recent financial and economic crisis of the European Union had exposed the necessity to complete monetary union with an economic union. One of the assets of a stronger economic integration is the harmonization of the tax systems (e.g. the corporate tax regimes) of the 27 Member States. Having this in mind, the European Commission proposed a common mechanism for the calculation of the corporate tax base, the consolidation of the tax bases incurred in the different Member States and the subsequent allocation of the consolidated tax base between the Member States effected (formulary apportionment) in 2011. The system envisaged by the European Commission is already introduced by the world highly integrated economies, like the United States of America and Canada on a domestic level, where the corporate tax base shall be also allocated between the states and the provinces based on the formulary apportionment method. This current article aims to present and compare the elements (factors) of the formulary apportionment method applied by the United States of America and Canada, and the elements of the allocation method proposed by the European Commission.

Keywords: tax harmonization, corporate tax, European Union

1. Introduction: Economic downturn and the proposed way forward

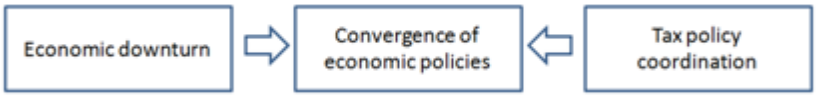
As the industrial modernization process provided a solid basis for the development of the centralized nation states in the XIX. century, the globalization, the spread of the multinational corporations, and the multi-inter-dependences all lead to the overshoot of the traditional state boundaries and inquired the need of some supranational alliances for the beginning of the new millennium (Kende and Szűcs, 2009, p. 41). The European Union being a supranational organisation - throughout the economic policies governed – qualifies for an answer of 27 different European states for these before-mentioned challenges. The recent worldwide financial and economic crisis further supported the need of the economic policy alignments and had clearly exposed the necessity to complete the monetary union with an economic union. Currently, the majority of the Member States (specially the Eurozone countries) agree on the need of the higher convergence of economic policies - including tax policies.

Certain economic policies, like customs, foreign affairs, regional development are handled at supranational level within the European Union. However, to build a stronger economic integration the alignment of further legislations (e.g. on the field of business taxation) governed by the Member States is a must. France and Germany, as two leading economies of the European Union both urge common corporate and financial transaction taxes and besides supra-national level, they harmonize their domestic business tax systems also on a bilateral basis.[1]

Figure 1 below presents the relationship between the economic downturn and the tax policy coordination: the crisis triggers a demand for the higher convergence; meanwhile, the tax harmonization is a non-negligible asset of that required integration.

[1] On the bilateral harmonization, please refer to the Franco-German green paper on convergence in business taxation issued on 8 February 2012.

Figure 1: Crisis and the proposed way forward in the European Union



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In the article below, first I will analyze the need for and the most important steps of the – customs, indirect and direct tax policy coordination in the European Union from the beginnings. Furthermore, in the second part of the article I will focus on the ongoing European harmonization process of the corporate income tax legislation.

2. Common market and progressively approximating economic policies

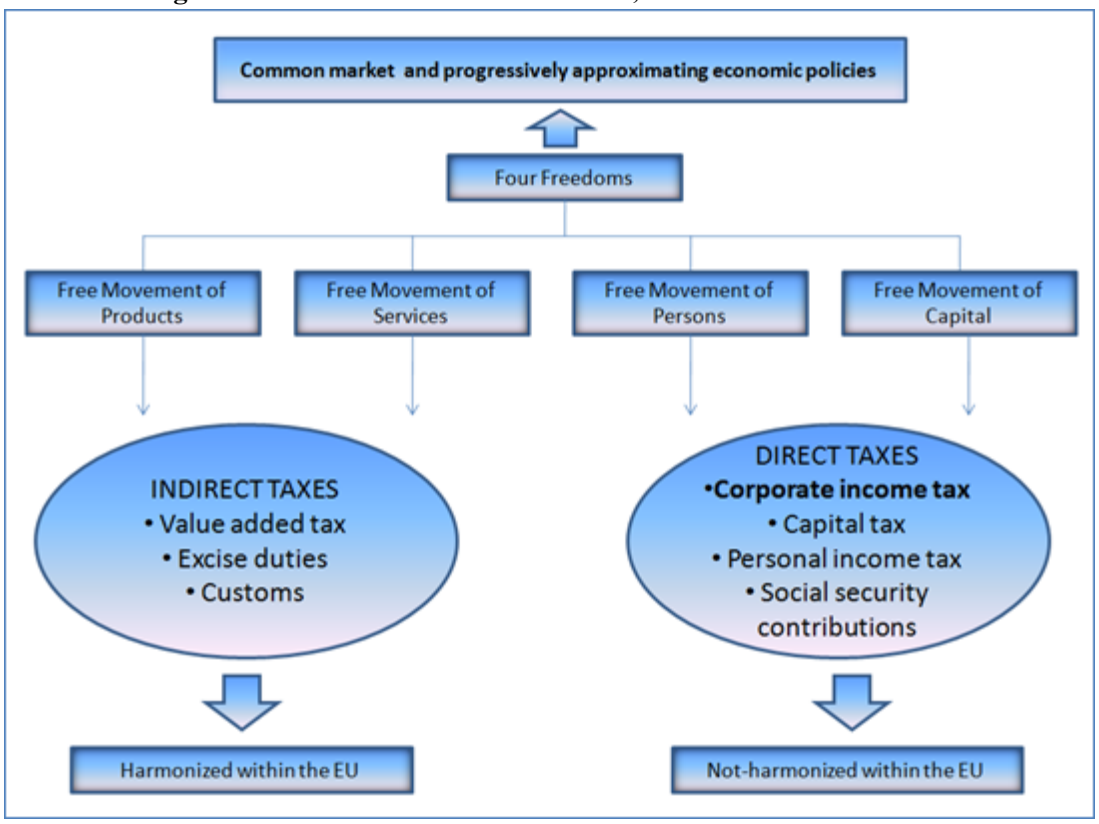
Tax policy coordination is one of the basic elements that can contribute to a stronger economic integration in the European Union. In Article 2, the Treaty of Rome, the agreement establishing the European Economic Community (EEC, EU or Community) defines that the EEC shall have as its task, by establishing a common market and progressively approximating the economic policies of the member states, to promote throughout the EEC a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, an accelerated raising of the standard of living and closer relations between the states belonging to it.

Furthermore, in Article 3, the Treaty of Rome includes also those activities of the EEC which are needed to undertake in order to fulfill the purposes set out in Article 2. Among these activities, Article 3 of the Treaty of Rome defines that the Member States shall eliminate any obstacles to freedom of movement for products, services, persons and capital (Four Freedoms).

Taxes and customs levied by the different Member States may be one of the most significant barriers against the Four Freedoms. The relationship between the free movement of products, services, persons and capital and the taxation and custom system is envisaged on the Figure 2.

At the time of the establishment of the EU, the Member States exhibited substantial differences of structure and rates with respect to the five main types of taxes – namely, sales taxation, excise, corporate taxation, personal taxation and social security contributions. In the field of indirect taxation the general sales tax took the form of value added tax in France, a cumulative or cascade sales tax in West Germany and a single stage tax in Italy. Excises were even more varied and included fiscal charges of all kinds, often exercised through state monopolies of manufacture and sale. In the field of direct taxation similar diversity existed in corporate and personal taxation. Three standard form of corporate taxation were in alive: the separate or classical system, the split rate system, and the imputation system. Italy had no corporate tax system in the modern sense. Personal income taxes were also very diverse on their bases, rates, allowances and degrees of progressivity. In the field of social security finance there were large differences in coverage and methods of finance (Robson, 2002, p. 180).

Figure 2: Four Freedoms and Customs, Taxes and Contributions



Source: own editing based on Erős (2005, p.194)

3. Tax policy coordination in the European Union from the beginnings

3.1. Harmonization of customs and indirect taxes

Indirect taxes, like value added tax, excise duties and customs are levied on the turnover of products or services; therefore, these levies are able to hinder the free circulation of the products and services in an internal market established by the EEC. Treaties establishing the EEC contain many specific provisions on indirect taxation, notably on the Community customs union, harmonization of indirect taxes and a ban on discriminatory and protective product taxation. The harmonized EU legislation on indirect taxes and the custom union has been established based on these specific treaty provisions, the equivalent of which is lacking for direct taxation.

Since the set up of the EEC, the custom union was created and the indirect taxes were appropriately harmonized within the member states. The elimination of the trade barriers to the Four Freedoms started with the establishment of the custom union within the Member States. In Article 9.1, the Treaty of Rome explicitly declares that the EEC "*shall be based upon a customs union which shall cover all trade in goods and which shall involve the prohibition between Member States of customs duties on imports and exports and of all charges having equivalent effect, and the adoption of a common customs tariff in their relations with third countries.*"A customs union implies the total prohibition, between the Member States, of import and export duties and of any charge having an effect equivalent to a customs duty. Obviously, it also implies a common customs tariff at the outside borders of the European Union. That common customs tariff came into force on 1 July 1968 (Terra and Kajus, 2011, pp. 21-22). The currently effective legislation on the common customs tariff is the Council Regulation (EEC) No 2913/92 of 12 October 1992 establishing the Community Customs Code.

Besides the establishment of the custom union, the harmonization process of the value added tax regimes also started in the early years of the EEC. The harmonization of indirect taxation was explicitly demanded by Article 99 of the Treaty of Rome: "*The Commission shall consider how the legislation of the various Member States concerning turnover taxes, excise duties and other forms of indirect taxation, including countervailing measures applicable to trade between Member States, can be harmonized in the interest of the common market.*"

The problem that the non-uniform indirect taxes hinder the free movement of products and services was covered by the Member States participating in the EEC and an intensive debate was emerged on the field of the harmonization of the policies affecting the intra-Community trade already in the 1950s. The first relevant document, the Tinbergen report (1953) dates back to the European Coal and Steal Community. The Tinbergen Committee emphasized the equivalence of value added taxes levied in the country of consumption (destination principle) or in the country of production (origin principle), as long as the tax was levied on all goods at the same rate. However, since the destination principle was generally adopted for international trade at that time and the competence of the European Coal and Steal Community was then confined to the coal and steel sector, the Tinbergen Committee recommended the application of the destination principle also for the trade of this sector (Haufler, 2004, p. 22).

The second major report from the early years of the EEC was the Neumark report (1963)[2] .It recommended the replacement of the gross turnover tax, existing in the most EEC Member States that time to the net turnover or value-added tax that was already in place in France. The report also emphasized the importance of removing the tax obstacles within the EEC; and therefore, suggested to switching from the destination principle, which requires border tax adjustments for its implementation, to the origin principle. The EEC followed the recommendation on the establishment of VAT (1967), but decided to maintain the destination principle as the commodity tax scheme governing intra-Community trade.

At the end of the sixties, the First and Second VAT Directives[3] were issued. Although, the implementation of the First and Second VAT Directives was the first stage in the harmonization of the turnover taxes in the Community; they laid down only the general structures of the system and left it to the Member States to determine the coverage of VAT and the rate structure (Tyc, 2008, p. 89). It was not until 17 May 1977 that the Sixth VAT Directive was adopted which established a uniform VAT coverage. On 1 January 2007, the Sixth VAT Directive was replaced by the Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax. This latter is the currently effective directive on the field of the value added taxation.

Regarding the excise duties, the harmonization process has started in the 1970s. Based on the so-called White Paper from June 1985, the European Commission submitted a number of proposals for directives which were arranged for precise harmonization of tobacco, alcohol and mineral oil taxes. However, the submitted proposals faced resistance by the Member States. Aside from the designated harmonization of tax rates, the resistance was based on the expectation of the adaptive difficulties as well as budget risk. In response to this resistance of the Member States, the Commission issued revised proposals for directives in 1989 and 1990. These proposals were characterized by the new concept of the Commission: to harmonize by introduction of minimum tax rates and ranges. The

[2] See Report of the Fiscal and Financial Committee, An unofficial translation, IBFD, 1963

[3] See First Council Directive 67/227/EEC of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes, Second Council Directive 67/228/EEC of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes

directives were finally passed in 1992 (Knödel, 2008, p. 9). Since that time, the Commission developed further the harmonized legislation of the excise duties and adopted an updated directive[4] on the general arrangements for excise duty.

3.2. Harmonization of direct taxes

Contrary to the indirect taxes, direct taxes (personal income tax, corporate income tax), capital tax and social security contribution should be paid on income and capital flows; so, these may prevent the free movement of persons (natural or juridical) and the free movement of the capital.

Free movement of persons includes the right of establishment, which means that natural persons (workers, self-employed persons, students, pensioners, etc.) may opt for the place of their stay within the Community. Within a common market it is not only labour and entrepreneurship which must be able to move freely. Obviously, the same is true for the other production factor: capital. Persons must be free to borrow money or issue shares where they think the cost of capital is lowest. Investors must be free to invest their money where they feel the risk/yield ratio is best. Moreover, the right of establishment of persons implies the need for free movement of capital, as cross-border establishment of undertakings usually entails cross-border capital (assets) movement.[5]

Notwithstanding the above arguments, the Community has not included personal income taxes and social security contributions among those intended for harmonization. In effect, it is tacitly agreed that harmonization should not directly impinge on these levies which should remain exclusively subject to national sovereignty (Hitiris, 2003, pp. 124.). Therefore, below I will focus on the harmonization process of the corporate income tax regimes of the Member States.

The harmonization of corporate taxation is required by the Article 100 of the Treaty of Rome[6]: "*The Council shall, acting unanimously on a proposal from the Commission, issue directives for the approximation of such provisions laid down by law, regulation or administrative action in Member States as directly affect the establishment or functioning of the common market.*"

Since the founding of the EU, company taxation has received particular attention as an important element first for the establishment and then the completion of the internal market.

The Neumark Report published in 1962 included several recommendations also for the harmonization process in the field of corporate taxation. Together with the Tempel Report issued in 1970, they proposed a number of initiatives designed to achieve a limited degree of harmonization of the corporate tax system, base and also rates.

In 1975, the Commission had put forward appropriate proposals for directives in which it recommended a single statutory corporate income tax rate, set between 45 percent and 55 percent, a common (partial) imputation credit system along the lines of the French *avoir* fiscal method with a single rate of credit to the shareholder for the company tax underlying the distributed dividend, and 25 percent withholding tax rate applicable on all dividends except for dividends distributed by a subsidiary to a parent company situated in one of the Member States. However, the directive proposal of 1975 was never adopted, because the EEC was of the opinion that before the alignment of the tax rates the rules of the computation of the tax base shall be harmonized (Kopits, 1992, p. 11).

[4] See Council Directive 2008/118/EC of 16 December 2008 concerning the general arrangements for excise duty and repealing Directive 92/12/EEC
[5] See supra note 13. pp. 24.
[6] Or see Article 115 under the Treaty on the Functioning of the European Union

In 1984 and 1985 the EEC more focused on loss compensation. It proposed a directive on the harmonization of the loss carry forward provisions. The Commission recommended a harmonized legislation making possible the carry back of losses for three years and the unlimited carry forward of losses. The proposal was later withdrawn.

In 1988 the Commission drafted a proposal for the harmonisation of the tax base of enterprises; however, it was never tabled, due to reluctance of most Member States.[7]

In 1990, the Commission temporarily abandoned the broad objective of the corporate tax harmonization to focus instead on the elimination of remaining form of double taxation. The Commission recommended that action be concreted on three major areas: removing the tax obstacles hindering the intra-Community cross border investment and shareholdings, establishment of a minimum statutory corporate income tax rate of 30% and common rules to compute corporate income tax base to avoid excessive tax competition.[8]

Among the three objectives mentioned before, some progress was achieved on the first point and following on from Commission proposals which originated in the late 1960s; three measures - two directives and a convention - were finally adopted in July 1990 (the Merger Directive[9], the Parent-Subsidiary Directive[10], and the Arbitration Convention[11]).

The essence of the Merger Directive is the deferral of capital gains on the occasion of a qualifying reorganization. This deferral is achieved through the roll-over of basis, i.e. carrying over the original value for tax purposes of the assets, liabilities involved. In other words, the Merger Directive require the Member States to refrain from taxing any capital gains triggered by the cross border merger, division, transfer of assets, exchange of shares. The benefit of the Merger Directive therefore is not a tax exemption; rather it provides a tax deferral (Hofstatter and Hohenwarter-Mayr, 2009, p. 138).

The Parent-Subsidiary Directive concerns the tax treatment of the profit distributions made between parent companies and subsidiaries situated in the Member States. The aim of the common tax system based on this directive is to prevent tax measures of the Member States that constitute a disadvantage to cooperation between companies of different Member States compared to cooperation between companies of one Member State (Helminen, 2011, p. 137). This objective is achieved through the withholding tax exemption covering the profit distribution made from a subsidiary situated in one Member State to the parent company situated in another Member State.

The Arbitration Convention, based on a 1976 proposed directive, establishes a procedure to resolve disputes where double taxation occurs between enterprises of different Member States as a result of an upward arm's length adjustment of profits of an enterprise of one Member State.

In 1992 the Report of the Committee of independent experts on company taxation, commonly known as Ruding Report examined the relation between company tax systems and the functioning of the forthcoming internal market. The recommendations of the Ruding Report are the removing those discriminatory and distortionary features of countries' tax arrangements that impede cross-border

[7] Towards an Internal Market without tax obstacles, COM(2001) 582, pp. 4.
[8] See supra note 12, pp.11.
[9] See Council Directive 90/434/EEC of 23 July 1990 on the common system of taxation applicable to mergers, divisions, transfers of assets and exchanges of shares concerning companies of different Member States
[10] See Council Directive 90/435/EEC of 23 July 1990 on the common system of taxation applicable in the case of parent companies and subsidiaries of different Member States
[11] See 90/436/EEC: Convention on the elimination of double taxation in connection with the adjustment of profits of associated enterprises

business investment and shareholding; the setting a minimum level for statutory corporation tax rates and also common rules for a minimum tax base, so as to limit excessive tax competition between Member States intended to attract mobile investment or taxable profits of multinational firms, either of which tend to erode the tax base in the Community as a whole; and encouraging maximum transparency of any tax incentives granted by Member States to promote investment, with a preference for incentives, if any, of a non-fiscal character.[12] Even though the Ruding Report included detailed and valuable findings and recommendations, it met with limited support and failed to achieve much progress.[13]

The 1990 approach was developed further in 1996/1997 in a Commission Communication[14]. The tax package and notably the Code of Conduct for business taxation have introduced a new dimension to the discussion. The single market driven approach was supplemented with the objectives of stabilizing Member States' revenues and promoting employment which are now taken up and re-assessed in the above-mentioned recent Communication on the priorities of EU tax policy. In 1999/2000 the Council, in order to supplement the ongoing work on the tax package which had been agreed by EU Finance Ministers in December 1997, requested a comprehensive study on company taxation to be carried out by the Commission.[15]

In 2001, the Commission proposed a strategy for providing companies with a consolidated corporate tax base for their EU-wide activities.[16] The study analyses the impact of the differences in the effective level of company taxation on incentives to invest within the internal market[17] and also highlights the main tax obstacles to cross-border economic activity in the internal market.

The abolishment of withholding taxes levied on cross-border interest and royalty payments between associated companies of different Member States was also proposed by the Commission. In 2003, the Council adopted the Interest-Royalty Directive[18], which eliminates the taxes withheld by the source Member States on the intra-Community interest and royalty payments.

The next important step in the process of the corporate income tax harmonization was the creation of a delegated Working Group for the tax base harmonization project consisting of experts from the tax administrations of all Member States. The Working Group was set up in November 2004 and met thirteen times in plenary sessions up until April 2008. In addition, six sub-groups were established to explore specific areas in more depth and reported back to the Working Group. The role of the national experts was limited to providing technical assistance and advice to the Commission services. The Working Group also met in extended format three times (i.e. December 2005, 2006 and 2007) to allow all key experts and stakeholders from the business, professions and academia to express their views.

[12] Conclusions and Recommendations of the Committee of Independent Experts on Company Taxation, 1992, pp. 11.
[13] See supra note 12, pp.11.
[14] See Communication from the Commission to the Council Towards tax co-ordination in the European Union - A package to tackle harmful tax competition COM(97)495
[15] See supra note 12, pp.11.
[16] Communication from the Commission to the Council, the European Parliament and the Economic and Social Committee: Towards an Internal Market without tax obstacles, COM(2001)582, 2001
[17] The study points out that the range of differences in domestic effective corporate taxation rates is around 37 percentage points in the case of a marginal investment and around 30 percentage points in the case of a more profitable investment. See supra note 12, p. 7.
[18] Council Directive 2003/49/EC of 3 June 2003 on a common system of taxation applicable to interest and royalty payments made between associated companies of different Member States

Notwithstanding the above achievements regarding the harmonization of certain items of the corporate income tax legislation, the corporate income tax base alignment is still ahead of the Member States[19]. Economic downturn of the past years likely re-highlighted the need of this latter objective.

4. Corporate income tax harmonization in the light of the recent economic downturn

As the Franco-German proposal concluded on the euro zone summit of 4 February, 2011[20] also confirms, the recent economic recession certainly fasten the corporate income tax harmonization project. In winter 2011, the Pact for Competitiveness proposed six actions aiming to create a more competitive internal market within the European Union. Originally, the Pact for Competitiveness was designed for the euro zone Member States; however, non euro zone Member States were also invited to join to the coordination.[21]

The Pact for Competitiveness includes the following actions:[22]

1. Abolishment of wage/salary indexation systems
2. Mutual Recognition Agreement on education diplomas and vocational qualifications for the promotion of mobility of workers in Europe
3. *Foreseeing the creation of a common assessment basis for the corporate income tax*
4. Adjustment of the pension systems to the demographic development (i.e. average age of retirement)
5. Obligation for all Member states to inscribe the "debt alert mechanism" into their respective Constitutions
6. Establishment of a national crisis management regime for banks

The creation of the common assessment basis for the corporate income tax is an important but controversial part of the Pact for Competitiveness.

Although the Pact for Competitiveness was renamed one month later as a "Pact for the Euro", the original aim to strengthen the economic integration of the member states remained unchanged. Therefore, at an informal meeting on 11 March 2011the heads of state and government of the euro area reiterated the step-plan outlined by the Pact for Competitiveness and proposed to undertake the original plans under the name of Pact for the Euro. The Pact for the Euro intended to strengthen economic policy coordination between member states with the aim of improving competitiveness and enabling a greater degree of convergence.

The objective of the Pact for the Euro is „*to strengthen the economic pillar of the monetary union, achieve a new quality of economic policy coordination in the Euro area, improve competitiveness, thereby leading to a higher degree of convergence.*"[23]

Pact for the Euro deals with four objectives:

[19] The EU currently refrains from the harmonization corporate income tax rates.
[20] Franco-German Pact and a CCCTB Proposal: International Tax Review; Apr2011, Vol. 22 Issue 3, p40-41
[21] Divergence or convergence: Saving the euro, The Economist (Online), 4 February, 2011
[22] Unofficial translation of the Pact for Competitiveness, 3 February 2011, www.euractiv.com
[23] Conclusions of the Heads of State or Government of the Euro Area of 11 March 2011, Annex 1. – A Pact for the Euro – Stronger Economic Policy Coordination for Competitiveness and Convergence, pp.5.

- Foster competitiveness
- Foster employment
- Contribute further to the sustainability of public finances
- Reinforce financial stability

Besides the main objectives, the Pact for the Euro also covers the tax policy coordination. The document declares that the direct taxation issues remain a national competence; however "*developing a common corporate tax base could be a revenue neutral way forward to ensure consistency among national tax systems while respecting national tax strategies, and to contribute to fiscal sustainability and the competitiveness of European businesses.*"[24]

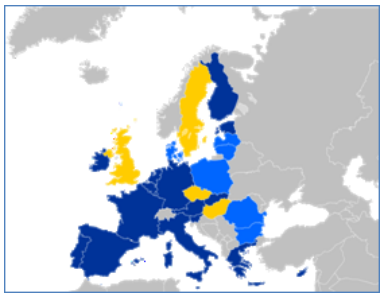
In the context of the Pact for the Euro, the tax policy coordination covers the following areas:

(1) the exchange of best practices,
(2) the avoidance of harmful practices and proposals to fight against fraud and tax evasion,
(3) *the development of a common corporate tax base*.

On 24-25 March 2011 the euro area Heads of State or government and Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania accepted the Pact for Euro. Four member states rejected the pact: the United Kingdom, Sweden, the Czech Republic and Hungary; however, the Pact for Euro[25] remains open for these member states to join later.[26]

Opting out from the Pact for Euro, the Member States have different reasoning: the United Kingdom wants to preserve its sovereignty, Sweden wants to protect is collective-bargaining system, the Czech Republic wants to avoid the fiscal harmonization[27] and Hungary wants to protect its national tax policy. Regarding the tax policy coordination, Hungary is not the only member state who rejected the harmonization. Malta and Cyprus, both countries that use the euro and have joined the pact, wanted to add a caveat: that they are not committed for now to accepting the common corporate-tax base.[28] Figure 3 indicates the European Union Member States reaction to the Pact for the Euro:

Figure 3: European Union Member States reaction to the Pact for the Euro



Source: www.wikipedia.org – Euro Plus Pact
Legend: dark blue: Eurozone members participating in the Euro Plus Pact
light blue: non-Eurozone members participating in the Euro Plus Pact
yellow: other EU members non participating in the Euro Plus Pact

[24] Conclusions of the Heads of State or Government of the Euro Area of 11 March 2011, Annex 1. – A Pact for the Euro – Stronger Economic Policy Coordination for Competitiveness and Convergence, pp.11.
[25] In March 2011, the Pact for the Euro was again renamed by Herman Van Rompuy, president of the European Council stating that the "plus" refers those among the ten non-euro countries that may choose to join the new union-within-the-union, which is designed to promote greater economic integration.
[26] European Council 24/25 March 2011 – Conclusions, EUCO 10/1/11, Brussels 20 April 2011
[27] Euro Plus Pact divides non euro zone members, www.euractiv.com, 29 March 2011
[28] What's in a name?: Pact for the Euro, The Economist (Online), 25 March, 2011

According to the related analysis, the declared aim of the pact is to encourage "convergence" to reduce the economic imbalances that contributed to the sovereign-debt crisis. However, the Pact for Euro could also have a deep political impact, in terms of creating a union within the union and may contribute to create a multi-speed Europe.[29]

In March 2011 the three objectives of the tax policy coordination identified in the Pact for the Euro were further developed. Objective 3 (i.e. the development of a common corporate tax base) was embodied in the proposal of the European Commission for a Council Directive on a Common Consolidated Corporate Tax Base (CCCTB)[30]. The European Commission proposed a common mechanism for the calculation of the corporate tax base, the consolidation of the tax bases incurred in the different Member States and the subsequent allocation of the consolidated tax base between the Member States effected (formulary apportionment). The system envisaged by the European Commission is already introduced by the world highly integrated economies, like the United States of America and Canada on a domestic level, where the non-federal tax base shall be also allocated between the states and the provinces based on the formulary apportionment method.

The term Common Consolidated Corporate Tax Base provides for the three basic factors of the proposed system. The first C in CCCTB stands for common. A common or uniform system would counteract the effects of non uniformity. The second C in CCCTB stands for consolidated. Consolidation of the activities of corporate groups for tax purposes would alleviate the problems inherent in taxation based on separate accounting and the arm's length standard, which is the norm in the EU as well as in international taxation more broadly (McLure, 2008, p. 157). Finally, the third C stands for corporate, which means that corporations established under the law of the European Union or third states being subject to the corporate tax in at least one Member State would be eligible to opt for system.

5. Consequences – A multi speed Europe?

The first recommendations for the corporate income tax harmonization were already issued in 1962 by the Neumark Report. Since that time the Member States of the European Union including the business sector and the respective scholars discussed a lot on the certain possible directions of the process, several directive proposal were issues and later withdrawn. However, both the regulative and the economic environment changed radically regarding the CCCTB project during the last years. Treaty of Nice and later the Treaty of Lisbon ratified the possibility of the enhanced cooperation which allows that a common tax policy like the CCCTB may be adopted by at least 9 Member States of the European Union. The enhanced cooperation redrafts the possible outcomes of the harmonization work, because – contrary to the unanimous acceptance of the policy alignment – it could lead to a multi-speed Europe and would be able to undermine the internal market, economic, social and territorial cohesion of the European Union.

[29] Divergence or convergence: Saving the euro, The Economist (Online), 4 February, 2011
[30] Proposal for a Council Directive on a Common Consolidated Corporate Tax Base (CCCTB)COM(2011) 121/4

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Government performance indicators in a strategic approach

József Kárpáti

When state intends to keep an active role in economy and everyday interactions in society - as it tends to be a trend among states after the crisis, called the "Neo-Weberian" type of state, one of it's greatest challenges is to report on it's own activity and confirm it's decisions, according future plans, current redistribution etc. since the society expects a clarification in exchange for the active state role.

Both economic phenomena and others beyond need to be measured and interpreted somehow. Numerous countries and international organizations started creating strategic level indicator sets to monitor the activity with more or less success.

This paper summarizes the current status of these approaches and introduces a possible complex strategic level of indicators in Hungary to assess four sides of the story: state organization, fiscal, economic and social phenomena.

Keywords: Neo-Weberian state, strategic indicators, government performance

1. Introduction

When the state intends to keep an active role in economy and everyday interactions in society - as it tends to be a trend among states after (or during) the crisis, called the "Neo-Weberian" type of state, one of it's greatest challenges is to report on it's own activity and confirm it's decisions, according future plans, current redistribution etc. since the society expects a clarification in exchange for the active state role. On the other hand, the inferences drawn from the operational indicators of the state give important feedback for the improvement of the further adjustment of redistribution, state-owned services, procuration etc.

Briefly: how the state is operated, is an important issue from economic, social and also from a management point of view. The economic phenomena, and other layers beyond need to be measured and interpreted somehow, but the assessment of deeper layers is very difficult. According to the high ratio of government expenditures to GDP in general, it’s a very legit requirement to force governments to report on results and even secondary achievements of this expenditure.

Numerous countries and international organizations started creating strategic and operative level indicator sets to monitor the activity with more or less success. These results are sometimes sobering, sometimes fuzzy since none of the experiments have been able to give a complete overview of state operations, so far.

All this experience points to that direction, that the performance of a “good” government should be examined in a very complex way. In my opinion this achievement can be reached by the creation of a complex set of indicators, where composite indicators and complex indicator-sets also have their own place.

This paper tries to summarize the current status of several approaches in a very brief way, and introduces a possible complex strategic level of indicators in Hungary to assess four sides of the story: state organization, fiscal, economic and social phenomena. My proposal in this article is an ambitious

try to show an almost-ready, applicable model. Since fiscal data and indicators are used most commonly, this paper does not lay the main stress on this area, but on all the rest.

It is certainly clear, that it's a very complex and challenging activity trying to describe state operation and performance in an interpretable way, so this article is rather trying to raise questions and initiate further discussion, instead of introducing a completely finished and ready-to-use table of indicators. However, this could be the very next action.

2. Good governance and good government – the two leading approaches so far

At the time of the mid-twentieth century two major directions have emerged from the weberian roots of public administration management. The opposite to the more or less strict and sometimes misinterpreted bureaucratic weberian administration was the liberal approach to state duties, so to say a market-oriented approach of public services and management (Báger and Vigvári, 2007; Hood and Pollitt, 1995; Osborne and Gaebler, 1993; Pollitt and Bouckaert, 2003 & 2004). The liberal approach reached its peak in the so called New Public Management wave, which had a huge impact on the ideas about state operation, but this approach was not successful enough to become a new, single paradigm in public management (Dunn and Miller, 2007; Gow and Dufour, 2000). However, with the leadership of the World Bank a new phrase emerged from these practices, and that was called "good governance". In the interpretation of the World Bank, good governance is a status what is a deficiency. Good governance is what would be required in the transforming developing countries (e.g. World Bank, 2008). Since the World Bank was usually not focusing on the public management conditions of a state and its services in its early decades, but rather just placed development aid and credit in the developing countries, during the nineteen-eighties it was an interesting but obvious evolution of its activity to foster macro-economic growth through public reforms in these countries more and more often. The World Bank was seriously criticized later, because of the one-eyed liberal approach it was using but they went quite far with some fierce replies (Kaufmann et al., 2007), as well, where the debate was about the limited role of the state to a "night-watch" role, giving a lot of opportunity to institutional pools of private enterprises and the co-ordination role of private organizations.

Not regarding these criticisms, it must be admitted that serious work was done and they issued the metric result of these activities, called the World Governance Index (WGI) project. They measure the status of 212 states with six composite indicators. The indicators summarize the results of 31 international organizations, NGO's and 33 databases of public opinion poll companies. We have to state, that the indicators contain the mixture of numerous "soft" factors, which are not necessarily interpretable very much.

These composite indicators are the following:

1. Voice and Accountability: the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
2. Political Stability and Absence of Violence/Terrorism: the likelihood that the government will be destabilized by unconstitutional or violent means, including terrorism.
3. Government Effectiveness: the quality of public services, the capacity of the civil service and its independence from political pressures; and the quality of policy formulation.

4. Regulatory Quality: the ability of the government to provide sound policies and regulations that enable and promote private sector development.
5. Rule of Law: in and abide by the rules of society, including the quality of contract enforcement and property rights, the police, and the courts, as well as the likelihood of crime and violence.
6. Control of Corruption: the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

In opposition to good governance, the sense of the good government paradigm is the linkage of the normative content of democracy with the demand of quality governance. It's based on the central role, accountability and responsibility of the state (Gazsó et al., 2008). This is presented for the citizens in the form of "good and reasonable life conditions" (Gazsó et al., 2008). These good and reasonable life conditions must be assured by a specific actor. Due to this, its activity will become assessable. In fact, this means that the actor's effectiveness and efficiency can be accounted and the actor can be made responsible for the achievement. By nature, such a role can only be fulfilled by the state, and not the market.

The neo-weberian approach states that the state is neither dead, nor incompetent. Even further, it's participation is required in more and more areas of life as never before (Drechsler, 2005; Lynn, 2008). This theory requires a top-down approach where we look at governance as a whole, and we define strong fundamental rules on its operation. Based on these rules we define interpretable measurement points and data sources which underline the expectations defined on systematic level. With other words: we deduct an institutional framework from the pre-defined goals of the state operation, together with its indicators, information.

The importance of going further in our examinations then the performance of economy when judging state operations became also highly reflected in the EU member states and forums as well, like the Atkinson Report in Great Britain, for example (Atkinson et al., 2005).

In August 2009, the European Commission released its policy paper "GDP and beyond: Measuring progress in a changing world" which is available in 22 languages. The Communication outlines an EU roadmap with five key actions to be undertaken now and in the near term. The communication states, that "The need to improve data and indicators to complement GDP has been increasingly recognized and is the focus of a number of international initiatives. These initiatives also reflect renewed societal and political priorities. In November 2007, the European Commission (together with the European Parliament, the Club of Rome, the WWF and the OECD) organized the Beyond GDP conference. The conference revealed strong support from policy-makers, economic, social and environmental experts and civil society for developing indicators that complement GDP and aim to provide more comprehensive information to support policy decisions (COM/2009/0433 final)."

The five key actions support the Commission's aims to develop indicators relevant to the challenges of today — ones that provide an improved basis for public discussion and policy-making. These key actions are: complementing GDP with highly aggregated environmental and social indicators, near real-time information for decision-making, more accurate reporting on distribution and inequalities, developing a European Sustainable Development Scoreboard and extending National Accounts to environmental and social issues.

3. An approach from the United States – The Calvert-Henderson Quality of Life Indicators

The Calvert-Henderson Quality of Life Indicators, first published in 2000 in book format, are the result of an extensive six-year study by a multi-disciplinary group of practitioners and scholars from government agencies, for-profit firms, and nonprofit organizations who see the need for more practical and sophisticated metrics of societal conditions (Calvert-Henderson, 2011). The set of indicators was invoked to life by the criticism on the pure regular macroeconomic statistical data by professionals (which in fact also went under a serious evolution during the nineteen-nineties by incorporating new areas such as green economy, environmental accounts etc.) which is really similar to the worries drafted at the GDP and beyond conference. The Quality of Life Indicators are not the result of a government decision, but they are coming from a bottom-up approach, widely used in the Unites States of America. The set covers education, employment, energy, environment, health, human rights, income, infrastructure, national security, public safety, re-creation and shelter areas with composite indicators. Since quality of life is often interpreted as the final outcome of government performance, the Calvert-Henderson approach can be seen as the outer layer of the justification of good government.

4. Institutional approach – a very brief example

In this approach we are facing a reversed bottom-up idea. In this context, good governance is interpreted through the right and feasible operation of the public administration services.

As it can be seen in the British example on Figure 1, they are starting out from a perspective, where institutions and public services receive expectations, benchmarks, and the fulfillment of these expectations in their daily operation creates the synthesis of good governance.

Figure 1: Good Governance model of British Public Administration

Source: GOOD GOVERNANCE STANDARD FOR PUBLIC SERVICES (2004)

5. Fundamental questions raised by the experiences

First of all we have to clear, whether we think about the state and its functions in a liberal or rather a neo-weberian way. I believe that today we have to focus on a state where its role is not only the creation of the possibility to live in a violence-free world, where state gives open possibilities for economy and it only assures the legal framework. This would be way too easy. We have to think about a more active state.

The second question is, whether we aggregate information from institutional data. Should we examine their operation by certain indicators and institutional goals and then sum up on a state level, or should we rather define fundamental goals for the state first, and then distribute these expectations to the institutional system of the state, deriving their own driving goals and activities from the state level expectations? Let's call this a strategic approach.

The third question raises concerning the type of indicators. Shall we concentrate on the creation of composite indicators or we should use complex indicator sets instead? If we examine the institutional operation on a unified way, we will receive well aggregated composite indicators, but the higher we step, the more general and hardly interpretable indicators we receive. If we use a general set of strategic goals and we go top-down defining the criteria for the different areas of state activity from the strategic level, we will receive a very broad set of complex indicators, where aggregation to a "final answer" will be harder.

It's also important to decide at the beginning, who the target audience of the information will be. For the government, it would be more reasonable to design a broad set of indicators, since they could serve as a map for the monitoring of the entire public domain, but some key elements have to be defined for the public opinion. A lot of research opportunity can be opened sectorally, as well on this way. If we use a smaller set of composite indicators, they will not be detailed enough to give a real picture of the governance phenomena, however, they could serve as benchmarks for the public opinion. I believe that both directions have their own advantage.

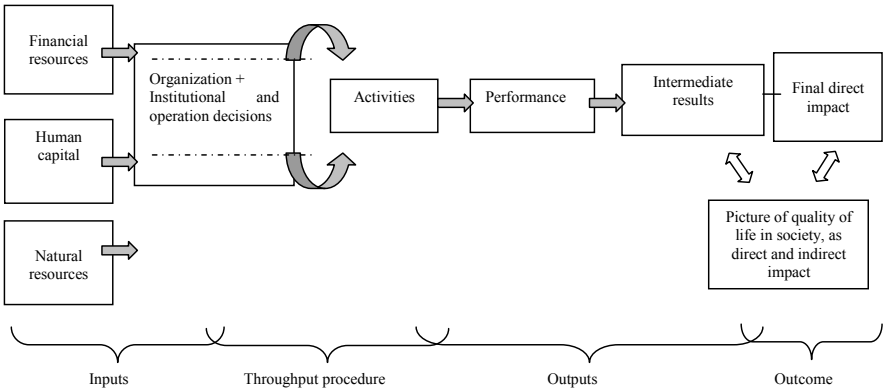
6. Introduction of the proposed indicator framework

My model introduces four dimensions of the phenomena. The first is a process-based approach, the second is a classifications by state functions, the third separates the different levels state operation, and the fourth – being a little strange – tries to give such an approach, whether the role of the specific indicators is rather important for planning decisions or for the sake of accountability and control. The presentation of my current research in this area is giving a description of the first two dimensions of the model, the rest requires further work.

The first step is the design of process-oriented approach as shown on Figure 2., where I was using a synthesis of the results of Van Dooren et al. (2006), Boyne and Law (2004) and Pollitt-Bouckaert (2004).

It is visible, that the first challenge is the uncertain line between the input-throughput-output-outcome stages' definitions. Starting out from the resources, it's worth mentioning that the existing organization itself is also a resource, while it also belongs to throughput procedure with the management decisions and the activities.

Figure 2: The process based decomposition of the state sector operation



Source: Author's edition based on ideas of Van Dooren et al. (2006), Boyne and Law (2004) and Pollitt and Bouckaert (2004).

At the same time, activities are also the outputs in the case of certain state services, so the trimming is not easy again. I have to stress that picture forming in the society is not just a following of the impact of outputs and direct outcomes, but this picture also affects intermediate results with its feedback. That's why the arrows point in both directions in this case. This decomposition will be the first dimension in the framework.

To create the second dimension, first I took the actual COFOG classification of the United Nations (COFOG, UN, 2007) available at the UN Statistics Division homepage for example, as this is the most widely used nomenclature for state operated services. This dimension will contain the functional breakdown of the framework, but COFOG needed some add-ons in my interpretation. The outcome of this exercise is Table 1, summarizing the functions of the state.

Table 1: Decomposition of state functions and services

	Possessions and services primarily for individual benefits	**Possessions and services primarily for collective benefits**
In kind	1. Education 2. Healthcare 3. Social protection 4. Support of recreation, culture and religious activities 5. Other services in kind	8. Public administration authority services 9. Military defense 10. Public order, public safety, jurisdiction 11. Basic research 12. Infrastructure of the country 13. General economic control, macro-economic supportive decisions 14. Environmental protection and energy policy 15. Other services, fostering civil awareness and action 16. Regulatory function (legislation) and institutions of representative democracy
In monetary terms	6. Social allowances 7. Further benefits in monetary terms for individuals (e.g. preferential income tax rules)	17. Foreign support and aid (received and sent) 18. Transfers in monetary terms used for special purposes

Source: Author's own work, based on COFOG classification (UN, 2007)

It's obvious that at this moment we are not necessarily able to link existing indicators to each chapter, and there are lots of "soft" factors, too, but they are also playing an important role in the context.

The model explained so far describes the aggregated level. These two dimensions can be added together in a matrix-table, where we introduce a third element: we make a distinction between financial and non-financial indicators here. It's worth to stress that this new distinction is not to be mashed up with the classification of functions and services mentioned in Table 1, since those serve the distinction within the given dimension, while from now I *introduce the classification of the indicators themselves as financial and non-financials*, which are applicable in the certain dimensions. (It's easy to accept that services in kind also have financial and non-financial indicators, while services in monetary terms behave the same way.)

The composition of the matrix-table is easy to follow if we introduce a systematic numbering of the cells. Since the table itself would exceed a few pages, I describe only the strategic level and the further method of the composition of the table with the example of state function nr. 1. (Education) from the second dimension.

The columns of the matrix-table represent the first dimension, the so called process decomposition (inputs-throughput-outputs-outcome) as described in Figure 2, supplemented with a strategic level column for the table (marked with the letter "X"). The clue of the three-digit number is the following: the first two characters represent the serial number of the second dimension from Table 1. the values may range from 01 to 18, plus the double zero, which represents the strategic level for each domain.

The indicators inside the matrix-table receive further two-digit serial numbers which are not presented in the table, since this is only the description of the matrix without the given indicators.

This systematic classification is the fundament of the "state function and service indicator map", where all necessary aspects can be incorporated in the examination. As a first step, the strategic level national indicators (Group A.001-D.002) and the strategic indicators of the specific functions and service (marked X.011 to X.182). The presentation of the method can be seen in Table 2.

Obviously not all the areas will be filled with indicators at every process step. This requires further adjustment with professionals and politicians within the different function and service areas.

Unfortunately, many attempts already have proven, that sometimes government actions and the impact caused in the world don't necessarily have a demonstrable correlation, so a linkage must be assumed with reasonable caution in some cases. Some rather fresh evaluations have proven for example, that the correlation between the financial support of public education and the pupil's PISA test results does not seem to be as strong as it was expected in advance, as stated by OECD (2006) or Donath and Milos (2009). Such evidences tell us to be very cautious when assigning indicators to outcome evaluation.

The strategic level of the indicator framework is applicable to monitor the fulfillment of government goals and for the dissemination of general information on government performance. In addition to the presented levels, the information can be grouped by the fourth dimension – whether the information serves planning or evaluation purposes.

Table 2: Proposed state function and service indicator map

	X. Strategic evaluation of functions	A. INPUTS	B. THROUGH-PUTS	C. OUTPUTS	D. OUTCOME
0. National strategic and evaluation indicators	./. n.a.	A.001. Financial input indicators of national strategic importance	B.001. Financial throughput indicators of national strategic importance	C.001. Financial output indicators of national strategic importance	D.001. Financial indicators of outcomes with national strategic importance
	./. n.a.	A.002. Non-financial input indicators of national strategic importance	B.002. Non-financial throughput indicators of national strategic importance	C.002. Non-financial output indicators of national strategic importance	D.002. Non-financial indicators of outcomes with national strategic importance
Possessions and services primarily for individual benefits					
1. Education	X.011. Strategic financial indicators of education	A.011. Financial indicators of education inputs	B.011. Financial indicators of education throughput	C.011. Financial indicators of education outputs	D.011. Financial indicators of education outcomes
	X.012. Strategic non-financial indicators of education	A.012. Non-financial indicators of education inputs	B.012. Non-financial indicators of education throughput	C.012. Non-financial indicators of education outputs	D.012. Financial indicators of education outcomes

Source: Author's own work

(The matrix-table continues with the same logic to the further functions and services de-scribed in Table 1. until the function group 18. The last lines have the codes ending with 181 and 182 for the Transfers in monetary terms used for special purposes.)

7. How to proceed with the work – an alternative for the presentation of indicators

The given framework of two dimensions has one weakness for sure, and this is the lack of grouping by such focusing points, that are more interpretable for the society and international organizations.

For this sake, we have to introduce an even deeper stratification. So to say, if we consider the process breakdown as starting point, we can define an alternative inner structure for the strategic indicators on a process basis, which helps society and organizations in evaluating the general performance of the state, and its government in a more understandable way.

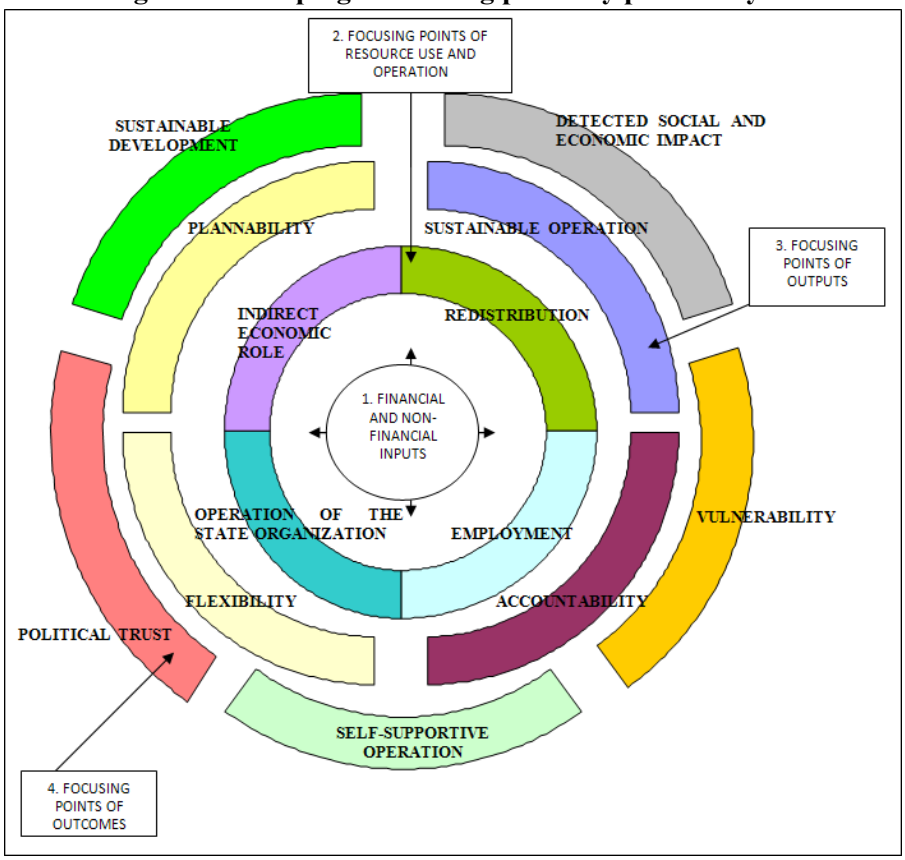
András Vigvári has introduced a little similar stratification in his article on local government sector (2003), which I re-structured for the basis of my own work with several transformations and additions. The "inputs" layer has no further focusing points, since it contains very factual and interpretable information. But for the "resource usage and operation" layer, "outputs" layer and "outcome" layer we can define them as follows:

1. Inputs: only financial and non-financial stratification without further focusing points
2. Throughput – resource usage and operation:
   a) Redistribution indicators
   b) Indirect economic role of the state
   c) Employment
   d) State organization operation indicators
3. Focusing points of assessment of outputs:
   a) Sustainable operation
   b) Flexible operation, use of opportunities
   c) Improved planning procedures
   d) Accountability of state
4. Focusing points of outcomes:
   a) Sustainable development
   b) Self-supportive operation
   c) Vulnerability threats
   d) Linkable social and economic impacts of state operation
   e) Judgment of political trust in government

With the use of this stratification, the opportunity of international benchmarking also opens up, since the topics covered with the focusing points are reflected in several international organizations' attempts to measure government performance, such as the Sustainable Development Indicators, the ESSPROS, the UN World Development Indicators (United Nations, 2007), OECD's Government at a Glance reports, the satellite accounts of national accounts, the already mentioned Calvert-Henderson Quality of Life Indicators and the Worldwide Governance Indicators (World Bank).

A graphical interpretation of this stratification can be seen on Figure 3.

Figure 3: Grouping of focusing points by process layers



Source: Author's own work

8. A first proposal for the use of indicators in this framework

This chapter contains a possible list of first-round indicators that can be already used in the defined framework. The grouping follows the proposal of Table 3. All indicators certainly require further examination and fine tuning of meta information. A majority of data are available in the Hungarian Central Statistical Office (HCSO), free of charge. The rest is usually indicated.

„0. NATIONAL STRATEGIC EVALUATION INDICATORS"

A. Inputs

Further focusing points: none

A.001. Financial input indicators of national strategic importance

1. Government revenues of subject year (bill.Ft)
- breakdown: tax revenues, social security and pension fund deposits, other revenues etc.
2. Government revenues ratio compared to GDP (in %)
3. Gross fixed assets of government sector and / or its change compared to year n-1
4. Accessible international and EU funds for specific purposes in the subject year or other time period

A.002. Non-financial input indicators of national strategic importance

5. Size of labor force working in public sector and/or their change in time compared to year n-1
6. Share of public sector labor force with a secondary degree, college/university degree
7. Ratio of labor force in public sector with at least one mid-level foreign language exam
8. Ratio of labor force with at least one high level foreign language exam
9. Number or ratio of labor force in public sector with at least two different college/university diplomas or PhD or equal degree
10. Selected labor force data of the entire population aged 15-64 years (further examination required)
11. Selected indicators of natural resources (further examination required)

B. Resource usage and operation (Throughputs)

Further focusing points: Redistribution, Indirect economic role of the state, Employment, State organization operation indicators

B.001. Financial throughput indicators of national strategic importance

Redistribution

12. Ratio of budget assigned to central government, public administration and local units of public administration organizations compared to GDP
13. Social security expenditures compared to GDP
14. Pension fund and similar expenditures compared to GDP
15. Redistributed revenues of other form compared to GDP

B.002. Non-financial throughput indicators of national strategic importance

Indirect economic role of the state

16. Composite indicators of budgeting practice (source: OECD Government at a Glance 2009)
17. Number of newly founded enterprises and number of dissolved enterprises or the balance of the two in the given period of time (source: HCSO)
18. Energy use and exposure indicators (source: Energiaközpont's energy statistics and energy balance)[1]

Employment

19. Number of employed in the economy (persons) in the specific time period and / or the change of their number compared to the similar period of previous year (%)
20. Unemployment rate (%) in the specific time period and / or the change compared to the similar period of previous year (%)
21. Employees of active age, from age 50 and over in the public sector and their ratio compared to the same age group in the entire society

[1] This activity was transferred to Magyar Energia Hivatal (Hungarian Energy Office) from 01.01.2012.

State organization operation indicators
22. Composite indicators of public sector management practice (source: OECD Government at a Glance 2009)
23. political regulatory ability and violence-free operation (source: Worldwide Governance Indicators)

C. Outputs

Further internal focusing points: Sustainable operation, Flexible operation and use of opportunities, Improved planning procedures, Accountability of state

C.001. Financial output indicators of national strategic importance

Sustainable operation
24. Growth of GDP, growth intensity of GDP (%)
25. GPD per capita on purchasing power parities, average EU-27 (28) (source: Eurostat)
26. Main data of foreign trade balance
27. Real consumption expenditures of households
28. Ratio of gross savings of households compared to GDP
29. Balance of social security and pension systems of the given year, the change of their balance compared to historic data

Flexible operation and use of opportunities
30. Coverage indicators of financial support from EU funds and other foreign sources (*requires further examination!*)

Improved planning procedures
31. Difference between the expenditure gross sum of the annual state budget and the budget statement act of the subject year (Ft or %)
32. Difference between the revenue gross sum of the annual state budget and the budget statement act of the subject year (Ft or %)

C.002. Non-financial output indicators of national strategic importance

Accountability of state
33. Satisfaction index of public authority services (needs further work)
34. Education indicators (needs further work)
35. Corruption level (source: Worldwide Governance Indicators or ÁSZ (Board of Auditors) survey)
36. Government efficiency (source: Worldwide Governance Indicators)
37. Rule of Law (source: Worldwide Governance Indicators)

D. Outcome

Further internal focusing points: Sustainable development, Self-supportive operation, Vulnerability threats, Linkable social and economic impacts of state operation, Judgment of political trust in government

D.001. Financial indicators of outcomes with national strategic importance

Sustainable development
38. The change of consumer price index in time (%)
39. Ratio of public debt compared to GDP (%)
40. Ratio of government sector deficit compared to GDP (%)
41. Revenues of foreign assets in Hungary (on Euro and / or Forint basis) (%) (source: MNB / Hungarian National Bank)
42. Re-investment ratio of foreign assets revenues in Hungary (source: MNB / Hungarian National Bank)

Self-supportive operation
43. The liabilities of the total national debt compared to the state revenues (%)
44. Change of real capital assets compared to capital (%)
45. The revenues raised from own resources compared to GDP (%)

Vulnerability
46. Ratio of inter-state transfers compared to total revenues (%)
47. Ratio of foreign government debt compared to net state debt (%)
48. The exchange ratio between government debt accounted in foreign currencies related to net government debt (%)
49. Balance of Payments (BoP) deficit in the ratio of GDP percentage
50. Total external government debt in the ratio of GDP

D.002. Non-financial indicators of outcomes with national strategic importance
Linkable social and economic impacts of state operation
51. Professionals leaving central institutions of public administration within three years time from appointment *(data source needs to be discovered)*
52. Consumer Trust Index (source: GFK – Corvinus Egyetem)
53. Consumer Expectations Index (source: GFK – Corvinus Egyetem)
54. Consumption Willingness Index (source: GFK – Corvinus Egyetem)
55. The position (and its change) of Hungary in one of the relevant international competitivness rankings (IMD / World Economic Forum)
56. Activity ratio of persons aged 15-64
57. Poverty ratio (ARPR at-risk-of-powerty statistics)
58. Poverty ratio aged 0-15 years (ARPR)
59. Expected years of healthy life at birth
60. Average age expected at birth men / women
61. Old aged' dependency ratio now and its forecast to the year 2050
62. Further literacy indicator(s) – (research required)

Judgment of political trust in government
63. Voice and Accountability (Worldwide Governance Indicators)
64. Participation data and comparison of parliamentary elections
65. Use and preparedness of E-government services (source: OECD Government at a Glance 2009)
66. Popularity index of politicians (source: Szonda-Ipsos)
67. Trust in economic policy of SME's (source: K&H Bank and GFK survey)

9. Closing findings

The introduced indicator framework and indicators are a first set, ready for debate. The current status of the work gives space for further fine tuning of the system and the incorporation of more indicators. However, we have to note that my article was studying the strategic level, already forming 67 indicators for this stage. But we don't have to be scared about the number of indicators, since the most of them are already available. What we have to do is create a well understandable framework that incorporates the knowledge we already have, from very distant databases.

This could result in a very cost effective and wide ranging set or map of indicators, which could be used as benchmarks for a government strategy and for the assessment of the government's achievements.

There is still one element or layer required, what I was not discussing in the context of this article. And this is the strategy setting by the state itself. Since never mind how good indicators we have, if we are not able to define the basis what we want to compare with or we are not able to define where we are heading at. This is the second direction where my research is going for, currently.

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Need for rethinking of the Hungarian fiscal and monetary policy

Ádám Kerényi

In October 2008 the main Hungarian public finance actors: the government, the National Bank of Hungary (MNB) and experts cited the high public debt and volume of unsecured foreign-currency loans as the main reasons for the economy's vulnerability. On the other hand according to the formal president of the MNB the first and foremost it was the inadequate level of foreign exchange reserves that made Hungary among the first to request outside assistance, in the form of international credit just after the Lehman bankruptcy.

That critical time the MNB was only partially able to fulfil its role as the 'lender of last resort', and the Treasury was not able at all to conduct an anti-cyclical keynesian fiscal policy due to the previous fiscal years when the government lost its international creditworthiness. Hungarian Treasury (NGM) in November 2011 – three years later than the previous package – requested again outside assistance, in the form of international credit or insurance from the Monetary Fund and European authorities. A rethinking of fiscal and monetary policy, and the comprehensive restructuring of the Hungarian economic-policy mix, are essential in the interests of avoiding the following stops and goes periods and of halting the social and economic disintegration of the country. Instead of good governance Hungary needs co-governance between the fiscal and monetary policy. The Fiscal Council might be a very useful institution to help and moderate this process with its new president. A Lucasian regime change is expected in the Hungarian economy.

Keywords: macroeconomic policy, macroeconomic aspects of public finance, fiscal policy, monetary policy

1. Introduction

What are the main criterias of an analyst concerning to the fiscal policy? The elected government has a discretional power to decide its prefences, and dispreferences. Gouverning politicians learn how to manipulate the fiscal policy not only to implement their programmes, but also use its benefits to ensure their re-elction.

This is just one side of the coin. The other side is there so many traps, disadventage to be a ruling authority. The responsibility refers also to make nonpopular decisions also. Successful program in terms of macroeconomic equilibrium very often is very painful socially. Luxembourg's Prime Minister Jean-Claude Juncker put it in a nutshell when he said: "We all know what to do, but we don't know how to get re-elected once we have done it".[1]

"Defining the state's role is a political decision. In practice, decisions are not made on the "aggregate" weight of the state: that tends rather to feature in political slogans only. But specific decisions may be taken on whether to increase or reduce the share of state-guaranteed pensions financed through the public pension scheme within the total income of the population in old age. Another example would be whether to increase or reduce the share of state-financed health care in total spending on health. These decisions have to be brought through a political process, in line with the constitution and legislation of

[1] http://www.europesworld.org/NewEnglish/Home_old/Article/tabid/191/ArticleType/ArticleView/ArticleID/20424/SweetandsourfruitsoftheVelvetRevolution.aspx

the country concerned and bearing in mind the traditions in its political process. Political decisions, if they are principled, rest on value judgments: individual liberty and freedom of choice, solidarity with other members of society, compassion for the disadvantaged in need of assistance, the right to welfare compensation for present efforts, or responsibility and sacrifice for the future. Politicians and citizens participating in the political process must choose a position in the conflict between such ultimate values." (Kornai, 2010, p. 250).

Hungary became a full member accepted the values of the European Union on 1st May 2004. Its membership has had a positive impact on the Hungarian economy and provided several competitive advantages for foreign companies setting up a permanent presence in the country. Despite all the advantages Hungary should adopt the euro as its official currency as soon as the economic crtierias are fulfilled.

The biggest contradictions of the policy framework built for the euro was that the Maastricht Treaty and the Stablity and Growth Pact concentrated mainly on the numerical aspects of fiscal policy. Macroeconomic policies cannot be assessed without taking into consideration the qualitative aspects of fiscal policy. A fiscal position in itself does not necessarily say anything about the sustainability of that policy. What must also be analysed is the nature – that is the quality – of the policy (Surányi, 2005).

The treaty and pact involved enormous political and economic risks which accumuluted simoultanously in the recent Hungarian ecomoic history. In addition to meeting the economic convergence criteria, a euro-area candidate country must make changes to national laws and rules, notably governing its national central bank and other monetary issues, in order to make them compatible with the Treaty. In particular, national central banks must be independent, such that the monetary policy decided by the European Central Bank is also independent.[2] In the European Union, some of the most important institutional checks on power are those exercised by the European Union and the broader international community, rather than within national level. The enforcement of democratic norms and economic inteerst are the most important functions that the European Union and other international institutes represent.

2. Political cycles corresponding to the election years

Despite many signs of the nonsustainability of the Hungarian budgetary process, none of the decisionmakers draw the final conclusion, they wanted to avoid facing the challenges. "The dominance of the political cycle over the economic cycle is evident in any time series data on government finances" (Kopits, 2007, p. 17). Following the political transition, Hungary had politically-driven, regular, four-year fiscal cycles until 2006. Election years invariably saw soaring fiscal deficits with a corresponding increase in public debt. The Hungarian macroeconomic data can be found in the Table 1-2.

"In the 2006 annual budget act, the ESA-95 general government deficit target was originally 6.1% of GDP (4.7% with pension funds inside the government sector). The original deficit target did not contain the cost of the Gripen purchase and assumed that the PPP schemes designed for motorway construction from 2006 onwards would comply with Eurostat rules. The upwards revision of the deficit target became inevitable partly due to methodological and accounting changes and partly

[2] http://ec.europa.eu/economy_finance/euro/adoption/who_can_join/index_en.htm

because of the developments in public finances in the first half-year" (Convergence Report, 2006, p. 17).

1. The Eurostat decision concerning the accounting treatment of defence purchases and the incorporation of motorway construction projects into the scope of the budget to improve transparency resulted in an expenditure increase corresponding to approx. 1.5 % of GDP in aggregate.
2. Over and above methodological changes, some non-recurring factors (flood protection expenditures, cancellation of the Iraqi debt, temporary increase of the deficit of municipalities, etc.) as well as some estimated overspending (interest, pension and health care expenditures, household gas price compensation, expenditures of central budgetary organisations, etc.) also pointed to a potential increase in the deficit.

Therefore, in June 2006, short after the general eceltions the government decided to introduce immediate measures to improve the balance.

It is correct to add that, the general government expenditures were increased in 2006 by sizable one-off items (accounting of the Gripen purchase, cancellation of the Iraqi debt, additional flood protection expenditures, one-off costs relating to staff cuts in the public sector, one-off expenditures relating to MÁV. Therefore, the structural deficit was considerably below the cyclically adjusted deficit in those years (Convergence Report, 2007).

By the summer of 2006 it was obvious that without a sharp and deep intervention into public finances the budget deficit could reach 11% by the end of the year. It was a sobering recognition.

"The budgetary policy between 2000 and 2006 attempted to stimulate growth with a high averaging 7-8% of GDP budget deficit, and real-earnings increases that were double the rate of productivity growth. In contrast to this, monetary policy, with forint interest rates that remained unjustifiably high for many years contributed to stimulating domestic demand for foreign currency loans, while at the same time the shoring-up of the exchange rate acted as a brake on growth and deteriorated the external balance" (Surányi, 2010, p. 24)

In the period of rapid adjustment, the expenditure cuts and the increase of revenues had been implemented simultaneously. A lasting budgetary equilibrium could be achieved only by the structural reform of the expenditure side, but rapid stabilisation also required the increase of tax and contribution revenues at 2006. Apart from stronger budget discipline, several measures promoted the reduction in the expenditures to GDP ratio. Possibilities were very limited. Hungary was paying a high price for the erroneous and wholly unsustainable fiscal and monetary policies followed between 2001 and 2008. It is primarily the fiscal and incomes policies that should be blamed for the abortive economic policies of the past period, because they were not able to accumulate reserves to counterbalance any possible external shock – reserves that would have enabled fiscal policy to operate anti-cyclically.

"The fiscal consolidation, although successful in quantitative terms, did not lead to economic growth, higher employment or the conditions for a better standard of living, and hardly improved the low growth potential of the Hungarian economy. With a degree of bluntness, one could say that the emergency operation was a success, but it remains uncertain whether the patient will live to see tomorrow or the day after" (Surányi, 2010, p. 23). As a result of the economic policy pursued by Hungary between 2007-2010 the country has been among the most disciplined countries as regards its budget policy is concerned. Leading economic experts (Alesina and Perotti, 1995) list three conditions to be satisfied on the basis of OECD country experiences for successful consolidation:

1. Instead of increasing taxes the emphasis should be put on the expenditure side.
2. The size of administrative spending and the number of state employees should be cut
3. The social welfare system has to be redesigned.

Fiscal consolidation had two waves, the first came from internal pressure and the second due to international conditions. The two financial adjustment programs together satisfied the three conditions of a theoretically successful fiscal consolidation. In an effort to correct worrisome trends in fiscal policy an increasing number of countries introduced a rules-based fiscal responsibility framework. Hungary was on the verge of financial bankruptcy in 2006 and in 2008.

The unpredictability of fiscal policy, which had previously made it impossible to coordinate fiscal and monetary policy, was eliminated. In the light of the antecedents, this was perhaps the most important change to the substance of government policy. Besides the quantitative fiscal correction, therefore, another commendable change was the strengthening of fiscal discipline, which led to greater predictability and less uncertainty. In contrast to this, the economic mix of the post-2006 correction, the interaction between budgetary and monetary policy, continued to be typified by a lack of mutual trust and coordination. This monetary policy focused on a one-sided and immediate anchoring of inflation and inflationary expectations at around the level of price stability (Chart 1), and, as an incidental objective, on restoring the short-term credibility of the Central Bank. After the agreement was concluded with the IMF, it was no longer so much the technical limitation that prevented the MNB from being active and courageous, innovative and prepared to make wide use of unconventional means and react with the appropriate degree of flexibility, but rather its inability to step out of its own shadow. First and foremost, a fundamental change of principles and approach was needed, similar to the one that has taken place widely around the world as a result of the crisis. Secondly, rather than redefining the opportunities available to it, the central bank highly controversially chose the unilateral tightening of budgetary policy as the way out of what was at the time still primarily a liquidity crisis. In other words, despite an awareness of the substantial expansion in liquidity in the offing from the international financial institutions, there was no fundamental rethinking of the monetary-policy frameworks. Instead, the central bank urged fiscal austerity, leading to a further escalation of the already severe impacts of the crisis (Surányi, 2010).

Table 1: Hungary: Main Economic Indicators

Subject Descriptor	Units	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
General government revenue	National currency billions	5 863,55	6 614,47	7 292,22	7 957,47	8 818,71	9 297,60	10 132,88	11 386,91	12 085,84	12 005,81	12 095,17
General government revenue	Percent of GDP	43,88	43,231	42,339	42,26	42,371	42,318	42,701	44,969	45,174	46,08	44,599
General government total expenditure	National currency billions	6 426,87	7 200,32	8 794,75	9 299,90	10 139,44	11 018,44	12 350,17	12 655,97	13 061,74	13 167,64	13 248,07
General government total expenditure	Percent of GDP	48,095	47,06	51,063	49,39	48,717	50,15	52,044	49,981	48,822	50,539	48,85
General government net lending/borrowing	National currency billions	-563,32	-585,842	-1 502,53	-1 342,44	-1 320,74	-1 720,84	-2 217,30	-1 269,06	-975,904	-1 161,83	-1 152,90
General government net lending/borrowing	Percent of GDP	-4,216	-3,829	-8,724	-7,129	-6,346	-7,832	-9,344	-5,012	-3,648	-4,459	-4,251
General government structural balance	National currency billions	-375,72	-621,452	-1 466,45	-1 333,98	-1 405,79	-1 964,60	-2 388,44	-1 390,91	-1 323,61	-779,531	-1 098,34
General government structural balance	Percent of potential GDP	-2,762	-3,996	-8,431	-7,063	-6,836	-9,116	-10,442	-5,677	-5,125	-2,883	-3,925
General government gross debt	National currency billions	7 290,00	7 942,95	9 539,99	10 963,72	12 283,13	13 582,51	15 592,50	16 732,81	19 346,85	20 422,40	21 749,42
General government gross debt	Percent of GDP	54,555	51,914	55,39	58,226	59,017	61,821	65,708	66,082	72,314	78,384	80,197
GDP corresponding to fiscal year, current prices	National currency billions	13 362,78	15 300,17	17 223,38	18 829,63	20 812,86	21 970,78	23 730,04	25 321,48	26 753,91	26 054,33	27 119,83
Current account balance	U.S. dollars billions	-4,01	-3,204	-4,642	-6,702	-8,589	-8,358	-8,578	-9,546	-11,441	0,463	2,696
Current account balance	Percent of GDP	-8,463	-5,996	-6,947	-7,98	-8,363	-7,593	-7,605	-6,923	-7,36	0,36	2,067

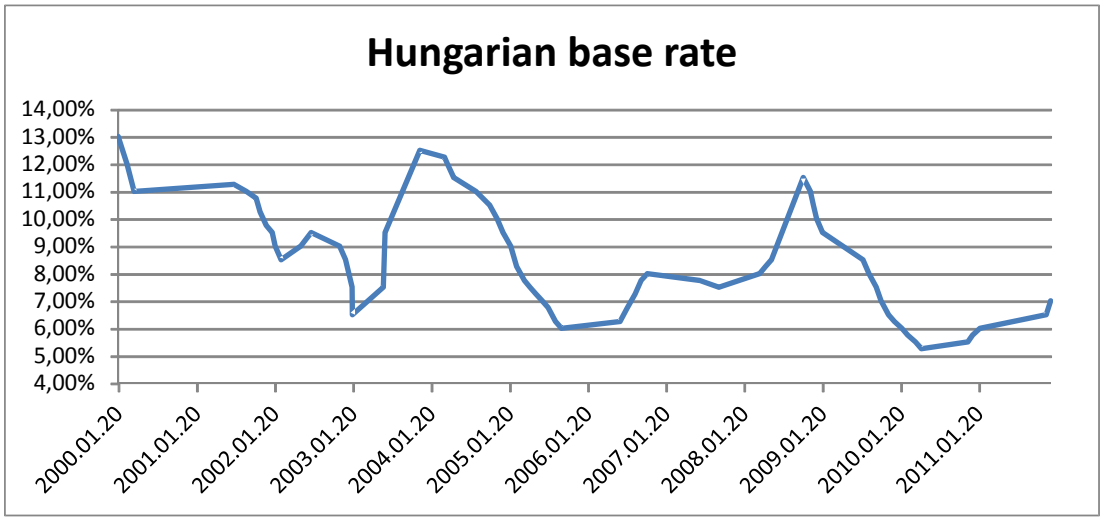
Source: International Monetary Fund, World Economic Outlook Database, September 2011 (www.imf.org)

Table 2: Rating history of the Republic's long-term debt

	Moody's			Standard & Poor's				FITCH Ratings			
	Foreign currency debt	Domestic currency debt	Outlook	Foreign currency debt	Outlook	Domestic currency debt	Outlook	Foreign currency debt	Outlook	Domestic currency debt	Outlook
2008.03.17	A2	A2	stable	BBB+	**negative**	BBB+	**negative**	BBB+	stable	A-	stable
2008.10.17	A2	A2	stable	BBB+	negative	BBB+	negative	BBB+	**negative**	A-	**negative**
2008.11.07	**A3**	**A3**	**negative**	BBB+	negative	BBB+	negative	BBB+	negative	A-	negative
2008.11.10	A3	A3	negative	BBB+	negative	BBB+	negative	**BBB**	**stable**	**BBB+**	**stable**
2008.11.17	A3	A3	negative	**BBB**	**negative**	**BBB**	**negative**	BBB	stable	BBB+	stable
2009.03.02	A3	A3	negative	BBB	negative	BBB	negative	BBB	**negative**	BBB+	**negative**
2009.03.30	A3	A3	negative	**BBB-**	negative	**BBB-**	negative	BBB	negative	BBB+	negative
2009.03.31	**Baa1**	**Baa1**	negative	BBB-	negative	BBB-	negative	BBB	negative	BBB+	negative
2009.10.02	Baa1	Baa1	negative	BBB-	**stable**	BBB-	**stable**	BBB	negative	BBB+	negative
2010.07.23	Baa1	Baa1	negative	BBB-	**negative**	BBB-	**negative**	BBB	negative	BBB+	negative
2010.12.06	**Baa3**	**Baa3**	negative	BBB-	negative	BBB-	negative	BBB	negative	BBB+	negative
2010.12.23	Baa3	Baa3	negative	BBB-	negative	BBB-	negative	**BBB-**	negative	**BBB**	negative
2011.06.06	Baa3	Baa3	negative	BBB-	negative	BBB-	negative	BBB-	**stable**	BBB	**stable**
2011.11.11	Baa3	Baa3	negative	BBB-	negative	BBB-	negative	BBB-	**negative**	BBB	**negative**
2011.11.24	**Ba1**	**Ba1**	negative	BBB-	negative	BBB-	negative	BBB-	negative	BBB	negative
2011.12.21	Ba1	Ba1	negative	**BB+**	negative	**BB+**	negative	BBB-	negative	BBB	negative
2012.01.06	Ba1	Ba1	negative	BB+	negative	BB+	negative	**BB+**	negative	**BBB-**	negative

Source: Government Debt Management Agency Private Company Limited by Shares (ÁKK Zrt.)

Chart 1: Hungarian base rate in %



Source: MNB

3. The rise and fall of the Hungarian Fiscal Council, and Fiscal Council 2.0

Hungary was hit harder by the liquidity crisis, and had to make use of outside assistance because of the very high (1) public debt, and (2) volume of unsecured foreign-currency loans. A successful economic-policy response to the crisis would demand the effective management of its underlying causes. And if this crisis management is successful, the primary factors precipitating the crisis should improve substantively: the public debt and the volume of foreign-currency loans should decrease (Surányi 2010).

The time to maturity of the loans from the International Monetary Fund is 5 years. Hungary will start paying back its loans drawn from the IMF after a 3-year grace period. Therefore, the first tranche of the IMF loans, which was drawn down in November 2008, has to be paid back from Q1 2012 in 8 quarterly installments. The tranches of the loan from the European Commission have one single repayment date each. The redemption profile of the IMF and the European Commission loans is in the Table 3.

Table 3: Rating history of the Republic's long-term deb million currency

	IMF			European Comission		Total
Date	XDR	EUR eqv.	HUF	EUR	HUF	EUR
Q4 2011				2	537,4	2
Q1 2012	527	614	151,556			614
Q2 2012	790	906	227,333			906
Q3 2012	790	906	227,333			906
Q4 2012	797	913	229,131			913
Q1 2013	797	913	229,131			913
Q2 2013	797	913	229,131			913
Q3 2013	797	913	229,131			913
Q4 2013	797	913	229,131			913
Q1 2014	270	299	77,576			299
Q2 2014	6	7	1,798			7
Q3 2014	6	7	1,798			7
Q4 2014				2	537,4	2
Q2 2016				1,5	403,05	1,5
Total:	**6,373**	**7,302**	**1,833,050**	**5,5**	**1,477,850**	**12,802**

Source: Government Debt Management Agency Private Company Limited by Shares (ÁKK Zrt.)

The deep global recession has focused attention on the need for counter-cyclical fiscal policy. The fiscal stimulus requires a careful evaluation of fiscal space and available financing (Kandil et al., 2010, p. 3). The half of the large increase in budget deficits in major economies around the world is due to collapsing tax revenues and to low (often negative) growth. Less than ten percent is due to increased discretionary public expenditure, as in stimulus packages (Galbraith, 2010, p. 2).

Due to the financial crisis, when the Hungarian authorities faced with a critical situation and "To put fiscal sustainability on a permanent footing, we have already submitted to parliament a draft fiscal responsibility law, which establishes fiscal rules on public debt and primary deficit, strengthens the medium-term expenditure framework (rolling three-year expenditure ceilings) and creates a fiscal council to provide independent and expert scrutiny" (IMF, 2008, p. 5).

The Hungarian government got rid of the Fiscal Council. Jozsef Varga member of Parliament proposed in an amendment to the 2011 budget draft to cut the Fiscal Council's budget to 10 million forints, more than 80 times, from the formal 835.5 million forints. Mr. Varga, who is the chairman of the Public Foundation for the Roma living in Hungary, proposed to channel the difference to the Roma foundation he leads. "It's necessary and timely to rethink the role of the Fiscal Council".[3]

The new Constitution includes the fundamental provisions with regard to the Magyar Nemzeti Bank, the State Audit Office and uniquely to the Fiscal Council.

[3] http://blogs.wsj.com/emergingeurope/2010/11/22/hungary-to-disband-fiscal-council/

According to the new Constitution, the members of the Fiscal Council are the President of Magyar Nemzeti Bank and the President of the State Audit Office and its president appointed by the President of the Republic. In light of the new regulation, the Fiscal Council supports the legislative work of the Parliament and inspects the well founded nature of the budget, furthermore delivers its opinion on any proposal with financial impact or affecting the financial system. In addition, the new Constitution gives a special right to the Fiscal Council. The adoption of the budget is subject to the preliminary admission of the Fiscal Council, without which the Parliament cannot adopt the act. Detailed rules on tasks and operation of the Fiscal Council are included in the bill no. T/5130 on the financial stability of Hungary.

According to the Bill (T/5130) on the financial stability of Hungary, the detailed rules on the Fiscal Council will ensure the high quality of economic governance. The Fiscal Council will examine the fulfilment of the debt reduction rule on a quarterly basis and will be empowered with a right to veto with respect to any legislative proposal affecting the budget law.

„The new Constitution contains several very strict regulations to ensure responsible financial management. For example, the NationalAssembly must not adopt a budget that would result in government debt above one half of the gross domestic product. Moreover, while government debt exceeds this value, the National Assembly may only adopt budgets that provide for the reduction of government debt. Deviation from these rules is allowed only in very exceptional cases, which clearly shows that debt reduction has become the highest priority of economic policy in Hungary" (Domokos, 2011, p. 5).

„The questionable relevance of institutions is brought home by the controversy over Hungary's new constitution, which went into effect on 1 January 2012 and inserting a series of provisions to weaken legislative control over the budget" (Fukuyama, 2012).

On 10 January 2012,the President of Hungary, appointed Dr. Árpád Kovács as Head of the Fiscal Council after Dr. Zsigmond Járai had resigned from this post. Dr. Árpád Kovács is former President of the State Audit Office of Hungary and current President of the Hungarian Economic Association. He is also a professor of finance.

4. Conclusion

A strict observance of the convergence programs submitted to the European Commission. Although the Stability and Growth Pact applies to Hungary, financial sanctions are in principle levied for noncompliance only in the euro area. Hungary imposed additional policy rules from 2006 at the as part of convergence programs. How to adopt a fiscal and monetary good governance? A rethinking of fiscal and monetary policy, and the comprehensive restructuring of the Hungarian economic-policy mix, are essential. "Carefully planned communication, transparency and the clear direction towards sustainability may have a favourable impact on the mood and decisions of international investors" (Török, 2010, p. 750).

The current Hungarian crisis is not just a debt and financial crisis, but a governance crisis as well. The response of Hungarian policymakers has been inadequate and badly communicated and they might have lost trust in their own ability to resolve the crisis. While the institutional background is solid of Hungarian economic policy it has deep-rooted problems. The pre-crisis efforts were insufficient to solve the non-sustainable imbalances in the economy. The crisis highlighted the fundamental mistakes, but the worries are still at large about Hungary. Instead of a downward spiral or a vicious circle I think

there are parallel processes. I want to put an emphasis on that the fiscal adjustment doesn't lead to a weak economy and lower public revenues which end additional needs in the term of fiscal adjustments. The root of the problems is that the Hungarian decision makers don't prefer to seek of the synergy. This is not just Hungary's fatal problem. There is a strong interdependence between countries, the fall of Hungary can create contagion in the euro-area which might lead to a financial global meltdown.

That is the main reason why Hungarian fiscal performance and achievement of transparency have recently been in the focus of increased international attention by the EU authorities, the international markets and credit rating agencies.

"If the political will exists to do something even in a system with a lot of veto players, it will happen; conversely, bad actors can undo even the best-designed institutions. Maybe institutions don't matter, after all" (Fukuyama, 2012). The problem is more severe if the euro framework is not well designed.

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The role of independent fiscal institutions in managing the European sovereign debt crisis: The case of the United Kingdom, Germany and Poland

Bernadett Kovács Gyöngyi Csuka

Since 2008, several OECD member countries had experienced a debt crisis, or at least were close to it. Three countries, Greece and Ireland in 2010, and Portugal in 2011, needed to receive help from the IMF through rescue packages. The debt ratio is expected to be above 60% of the GDP based on the projections for most of the OECD countries by 2015, (Rogoff, Reinhart, 2010), which means that the number of countries with the debt to GDP ratio of around 80 to 100 percent will increase.

The debt crisis occurs partially as consequences of errors in the economic policy. The government's fiscal discipline institutions can help to maintain the government deficit and manage the public debt.

The reason for the founding of these institutions is mainly to ensure the sustainability of the public debt, to create fiscal discipline, to maintain the budget deficit and to ensure the transparency of the budgetary process. In some EU countries, fiscal councils responsible for preserving fiscal discipline and compliance have existed for years. Ireland, Portugal and Slovakia have also launched initiatives to establish independent fiscal institutions.

The goal of the paper is to examine what the influence is of having approached the critical level of public debt, on changes to the fiscal rules in three countries of the European Union (Germany, Poland and the United Kingdom). The present study aims to compare the institutions that are responsible for fiscal budgetary discipline in the countries that are examined, with special regard to the degree of their independence, the duration of their existence, and areas of activity. The research results will be formulated regarding the lessons learned on the role of the EU fiscal policy institutions in crisis management.

Keywords: fiscal institutions, debt crisis, independence

1. Fiscal Deficit, National Debt

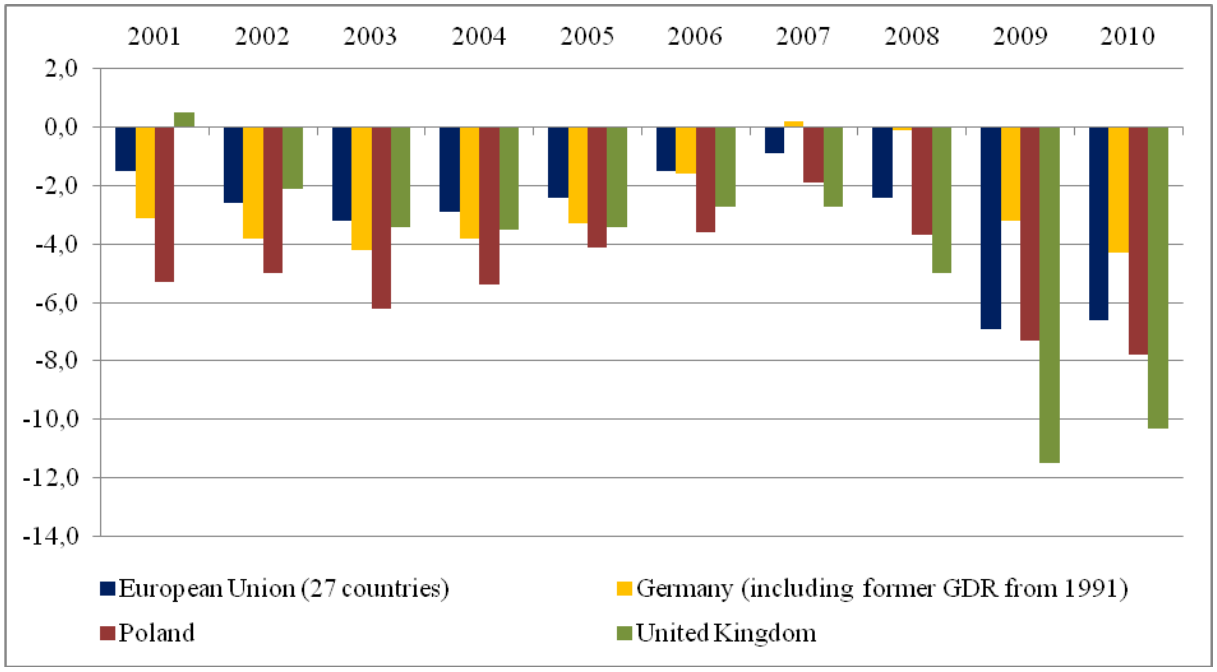
According to the classical point of view fiscal policy possesses three functions: allocation, redistribution and stabilization that realize anti-cyclic policy (Musgrave, 1959). After World War II, until the 70s the main question examined the fact whether fiscal policy was able to fulfil these three criteria efficiently. From the 70s on, most of the developed countries of the world maintained pro-cyclic economic policy[1] which led to a deficit of government budget. When national income does not cover national expenditure, governments have to appeal fund raising. Applying fund raising possibilities (issuing government securities, creditability) may lead to aggregation of national debt which increases default risk. Default risk can be differentiated from economic circumstances. Default risk appears as interest charge owing to the debt and higher discount rates of treasury bills. (Benczes and Kutasi, 2010).

[1] Artificial growth of inner demand occurs during conjuncture.

From the 70s, indebtedness threw new light upon fiscal policy. The conception of sustainability was also included to evaluate the efficiency of fiscal policy. One defines sustainability in connection with politics, if government is able to finance fiscal deficit without booking the increase of national debt. That debt path is unacceptable, when the process of indebtedness works the budget into a state where – considering the increase of interest charge - outgoings cannot be financed from the rate of earlier revenue tariffs. In some countries the governments are forced to maintain fiscal corrections by permanent and important deficiencies considering the increase of national debt / GDP rate which cannot be regarded as a sustainable state.

The higher the deficiency and the debt rate are the less flexible the fiscal policy reacts to the prevention of different economic shock effects (Benczes and Kutasi, 2010). As long as the financial government keeps maintaining the balance of income and expenditure, without increasing the substance of deficiency, the budget remains sustainable. If the government deficit occurs permanently some countries may get into debt spiral. In the case of persistent or chronic budget deficits, there is a risk the government will need to take out additional loans, which leads to further growing the magnitude of the debt. As a result the budget will suffer from even higher deficit, creating a debt spiral situation. (Auerbach and Gorodnichenko, 2010).

Figure 1: Government deficit/surplus, debt and associated data (percentage of GDP)



Source: author's own construction based on Eurostat (2011) data

The definition of fiscal sustainability highlights that no government can outspend without consequences. Some of the new EU members had already experienced the serious aftermath of debt crisis and reschedule in the pre-90s' political system. According to Kopits (2008), this term can be defined as „fiscal alcoholism". This expression is used for those states that cannot get out of overspending.

Earlier the constantly increasing deficit only had an effect on transforming or developing countries[2], primarily due to the irresponsible economic policy and the inadequate treatment of debt substance. The developed and pronouncedly unbreakable economics used to fear the problem of unsustainability of

[2] These are mainly Latin-America, Africa and politically and geographically changeable Eastern Europe.

the national debt much less[3]. These debt crises and the questions of trustworthiness of fiscal policy did not affect North-America and Western-Europe. The so-called low-keyed era from the 90s stabilized the financial state due to the strict controlling of national capital movement (Jordà et al., 2010; Eichengreen, 2007). Since the Second World War the national debt of developed countries has increased extremely in the years of the crisis which was followed by a huge argument about easing deficit as soon as possible. Decreasing deficit is necessary to stabilize and decrease the national debt according to GDP.

Between 1992 and 2007 the fiscal achievement of a government was qualified as effective if it was able to give a response to three main challenges. These were aging population (and the increase of the national expenditure connected to it), globalization and a bigger competition due to the transforming power relations. The results caused by fiscal stabilization and moderation were immediately swept by the fourth factor which was economic and financial crisis during the low-keyed era (Muraközy, 2011). It is impossible to match all the criteria at the same time.[4]

In spite of getting promises about increasing, in some countries problems with sustainability occur due to the slow economic growth which is accompanied with bigger and bigger deficits. An answer to the sustainability problem of national debt can be the prevention of market reactions which can only be carried out with the help of trustworthy political corrections, not with „stop-gapping" actions. The rule-based fiscal system can be functioned as an "anchor". There are several possible methods: to execute actions with the help of fiscal policy and accompanied with rules, to define directions concerning transparency and to organize an independent controlling committee. A democratic society is based on penetrability especially in those countries where market-trust is weak. Transparency problems are caused by accounting tricks and the difficult to follow complex presentations (incomparable account and financial documents in two years running). The regulation of debt ceiling can decrease penetrability as well. The unpredictable economic policy decreases the political authoritativeness of a country. Since every country is special, social institutions have to adapt to the specialities of the country (Kopits, 2011).

After the crisis in 2008, some developed countries faced up to the trustworthiness of their fiscal policies. A budgetary policy that is trustworthy is believed to be sustainable and remain sustainable. Fiscal untrustworthiness causes harm to the trustworthiness of the monetary policy. However monetary and fiscal policy are closely connected because the trustworthiness of the monetary policy is based on the EU zone (and not on society), but the fiscal policy affects the exchange rate of the euro in the interest of keeping investors from fleeing. The budgetary policy which follows a consistent path in the future can be defined as trustworthy.

2. Debt Crisis

One talk about debt crisis, if the debtor becomes insolvent or the creditor assumes a high risk of this possibility and denies the transfer of further credits (Reinhart and Rogoff, 2010b). In the economic crisis of 2007-2010, the concept of debt crisis has been considerably expanded. When a country is not bankrupt, but the government bonds carry a risk premium over a pre-determined critical level, the country is considered to be in a debt crisis (Török and Veres, 2011). Hierarchical debts can be very

[3] In 2010 Italy, Spain, Ireland, Greece and Portugal got into the endangered countries and partly Belgium and the UK (which does not use the Euro).

[4] Similar to pegged exchange, the independence of central bank and capital movement cannot be carried out at the same time (Mundell, 1968).

important. According to the growth and inflation in the future, debts remaining from a war obviously mean smaller problem than those huge debts that are piled up during peace time. The increase after war will be great because it provides manpower and power equipment to the civil economy. What is more, in wartime, governments spend a lot of money. It is typically the reason for the recruitment of debt. On the other hand, a debt in peace time may show unstable and long-lasting political dynamism. Here the authors do not highlight the formation of debt itself. They only examine the relationship between average and median increase and the results of inflation. This may lead us to understand how to decrease the unfavourable growing effects of debt burden during the crisis.

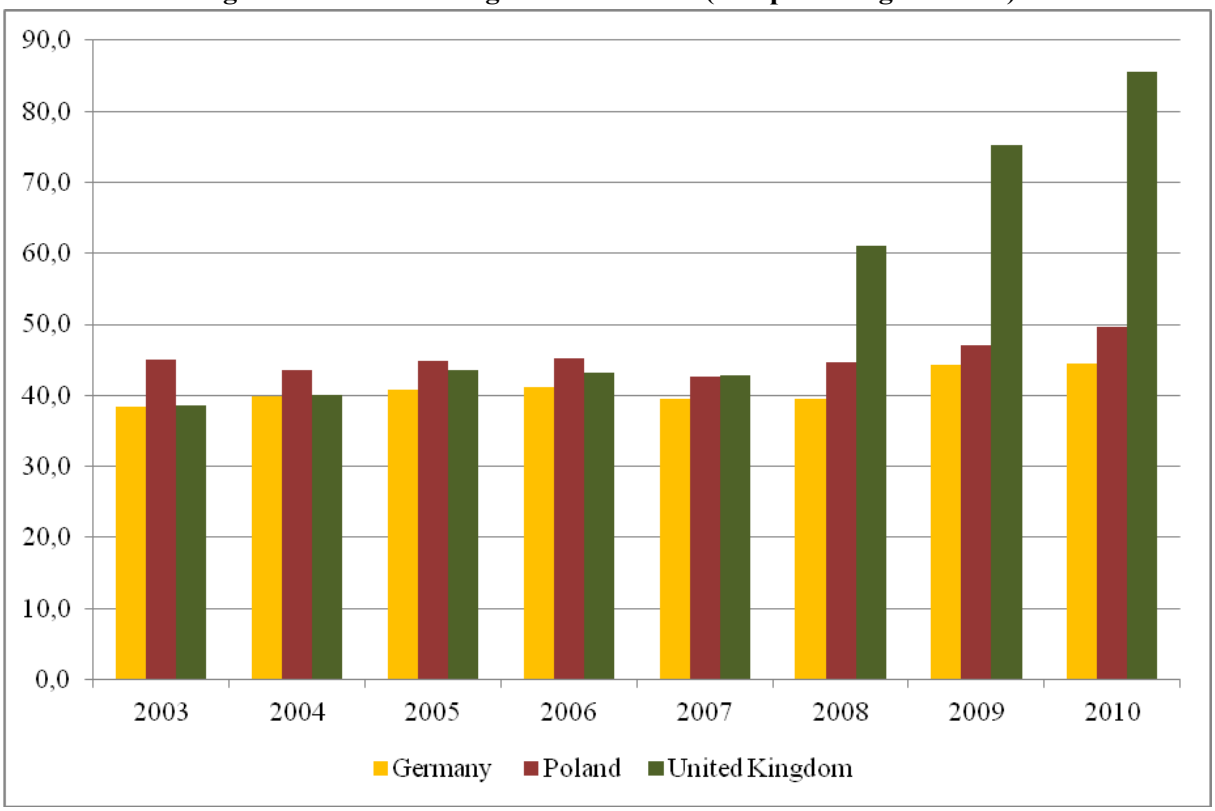
Reinhart and Rogoff (2010a) build their statement upon 200 years of data concerning debt, inflation and economic growth. The year data consist of more than 3700 observations dealing which come from a wide range of political and historical backgrounds, judicial circumstances and monetary systems. In the dissertation the authors made the following conclusions in connection with relationships between inflation and growth of debt:

1. There is little or no obvious relationship between real GDP growth and public debts or liabilities under 90%. Above this percentage the debt burden results one per cent lower median growth to those groups having lower debt. The average increase decreases even more significantly.
2. In the case of emerging economies one can see that – according to external debts (private and national) denominated with foreign currency – this threshold is lower than before: when all external debt reaches the 60% GDP rate, the year increase falls approximately two percent. At higher rates this number gets halved.
3. In developed countries, no obvious connection can be shown between inflation and national debt, not the same as in emerging economies where the growth of inflation adapts to the growth of debt.

Supposing that taxes have to be increased to reach the sustainability of debt, the distortional effect should reduce the possible expenses (Reinhart and Rogoff, 2010b). As a matter of course, governments should be able to carry out austerity measures by decreasing their spending. The government which tries to cover the exact value of its short-term credit may soon have to face up to much higher rate of interest. Financial damages are not the only factor wherefore preventing debt crises is important. The short-term growing effect of debt crisis is the most serious out of the three types of crises. Debt crisis can cause 5% decrease in economic growth. At foreign exchange crisis, this rate is 2,8%, while at bank crisis it is 2%. The three crises altogether can cause 10% decrease (Furceri and Zdzienicka, 2010). If national debt/GDP rate is higher than 90%, further 0,7-0,8% GDP decrease will apply (Reinhard and Rogoff, 2010b). It is important to highlight that deficit itself does not mean a problem if rate of deficit and national debt / GDP rate increase slower than the economy.

Due to the immediate effect of a crisis the differences between the non-payment risks of some economies decreased. In most of the Eastern-Europe countries and in some countries located out of the EU zone a sudden slowing down was observed. In the EU zone the lack of fiscal equilibrium was a surprise which led to distrust. The national debts increased, and most of the countries had to face up to a sustainability problem.

Figure 2: Total central government debt (as a percentage of GDP)



Source: author's own construction based on OECD (2010, 2011) data

3. New Crisis – New Solutions

The solution to the economic crisis not only means that the financial institutions must be reformed. The so-called „This time is different" syndrome comes from the belief that financial crises can only occur in other countries and can affect only other people and in a different time. An economic crisis cannot happen to us. We do things better, we are cleverer, we have already learnt from mistakes made in the past. The traditional rules do not pertain to us. The present boom is based on structural reforms, technological innovation and well-executed policy (Reinhart and Rogoff, 2010a).

During previous crises it was possible to know what tools would be good to use. Typical reactions of fiscal policy contained automatic stabilization, discretionary demand stimulation[5] and direct support of financial sector[6]. The new crisis created a new situation. Some countries have to face up to higher national debt than the earlier, higher risk perception, worse financing situation and lower trend following. In 2010 decision-makers of Europe conceded that a complete review of economic government and development of ruling and controlling social institutions are absolute necessary to stabilize the EU zone.

Fiscal policy had to adapt to crisis as well. One factor is the risk estimation where the adaptation to financial and economical crisis was carried out with the help of measuring risks, carefully planning, storing of money and designing budgetary plans. Budgetary deficit is the main reason but not the only reason of slowing economic growth and financial instability. Constantly high national debt is also a factor. To adapt to the new challenges, the relation of budgetary deficit and national debt is observed

[5] It has to excess demand in some areas of economy (e.g. car scrappage program).
[6] Bank systems to be liquidate to guarantee its work.

when fiscal efficiency has to be defined in a given country[7]. Thus national debt has to decrease consistently to be able to insure sustainability[8]. If it fails to fulfil, the country has to start the risk of deficit procedure.

One of the main points of defeating crises is the amount of initiative debt rate of the given country before the breakout of a crisis. The initiative debt is much more important than the debt rate itself because it will put pressure on amortization. It is also true that the debt rate of a country will increase faster if the external debt rate is higher and/or the debt rate is higher at the moment the crisis breaks out (Furceri and Zdzienicka, 2010). When crises happen, the instalment burdens of the debt will grow due to the increase of risk premiums and the reduced national incomes. That is why it is important for countries to be able to settle their initiative debt rate when the crisis breaks out.

The use of fiscal rules can be a solution to avoid bias towards indebtedness and excessive deficit. Fiscal rules are able to strengthen verifiability of economic policy and are able to prove the independent status of it. Their aim is to establish the trustworthiness of government policy. If the political will is not sufficient to maintain fiscal discipline, it will not be able to fit to the rules. Abiding the laws depends on those politicians who are controlled by these rules. It is vital whether the politicians regard these rules as a must (Benczes and Váradi, 2011).

4. Independent Fiscal Institutions

Fiscal policy is much more than defining the balance of next year. Fiscal deficit is regular in most of the countries in the world thus debt financing has to be carried out constantly. During governmental interference the state can pressurize two opposite effects on the market. It may reduce the consumer demands with the help of taxes and in the same time it increases the demand by buying goods. However the governmental expenditures also have a so-called crowding-out effect. Due to the taxes, the government reduces the demand namely it displaces private expenditures and with the process of buying goods it also displaces private demand from the economy (Auerbach and Gorodnichenko, 2010). This crowding out effect means that interests increase due to the growth of the national debt. Investments will move towards the safer form, which is why the interest rate also increases thus it will be more difficult to obtain capital.

The state sector ought not to displace the source of growth, for instance with public investments just because the price of increase effect is high compared to the growth of deficit and it is hard to maintain the costs between limits. Instead of this the sector has to establish the conditions to be able to expand later.

In the case of Hungary the adaptation of fiscal policy is more difficult because it had to face up to high initial debt ratio, low trend increase, high risk premium and trustworthiness problems from 2000 to 2006. Thus the situation of Hungary before the crisis was exactly the same as some countries will have had after the crisis. Hungary gave a pro-cycle response to the economic fallback. To accelerate the increase is not enough, the high growth pace cannot be sustained for a long time. Some countries can show high growth value but have to face up to serious problems. For example the Baltic countries

[7] The various indicators of fiscal performance such as the primary gap, government bond yields and credit default swaps (CDS) see in detail: Török, 2011a; Török 2011b.
[8] The long-term sustainability of government debt seems quite critical in the United States and in most PIIGS (Portugal, Italy, Greece, and Spain) with partial exception of Italy (Török, 2011a).

have great tolerance due to the „Russian heritage". To maintain their national independence is the most important.

The fiscal rule system is based on four pillars (i.e. fiscal policy challenge): the debt control or debt management as a limiting factor, the budgetary target as a tool, balance the expenditures and finally the fiscal council as the supporter of the whole rule system (Ódor and Kiss, 2011). An independent organization such as a fiscal council can guarantee a transparent fiscal policy. This has to be an organization in which the participants in the economy can believe and therefore trust as well. At the same time fiscal rule system means the self-restriction of fiscal policy. Fiscal rule system contains complex and serious sanctions that require great transparency. The credibility of fiscal policy can be realized only if sufficient transparency can be achieved. A task of fiscal council is to increase transparency. The fiscal council's main function is to support the whole system.

These independent fiscal institutions may be able to restrict the growth of public debt increase of national debt by means of their legal authorization. In order to avoid the debt crisis, the "institutional anchor" of fiscal policy needed in any country where investors may doubt the government's full commitment towards fiscal sustainability and transparency (Török, 2011a).

The duties of these councils can be different and depend on the fiscal rule system of the given country and the members involved in the operation. Its functions may be manifested by carrying out fiscal analyses without legal consequences as well as by veto. The transparency should be at a higher level if the power of the council is greater (Ódor and Kiss, 2011). Those institutes which assure fiscal responsibility and transparency can take part in arranging political decision-making. According to Kornai there are three main areas where fiscal policy has the right and obligation to form a strong opinion (Kornai, 2010):

1. Analysing the effects: the independent fiscal institution should require the analysis of the decision that have an effect on fiscal policy. It has to criticize the decision and publish its opinions and to make controlling investigation.
2. Monitoring consistency: Examination for consistency of economic rules by the government, without fighting for or against it. It is not possible to decrease the income of the nation, while increasing the expenditures at the same time. The duty of fiscal council is to examine whether the increase in fiscal expenditures are accompanied in parallel by plans to increase revenue as well expenditures.
3. Transparency of fiscal policy: commitment to transparency of decisions and steps regarding fiscal policy. Information regarding decisions and their consequences has to be clearly stated, unambiguous and made available for everyone, not only for decision-makers and experts. Check whether the budget is correct and avoid tricking and creative booking. Fiscal council must function as a bridge between government and fiscal policy.

Only the fully independent analysis is accepted by the markets. The economic populism may be bought by the electorate. A suitable fiscal policy is an important tool to solve a financial crisis. Proper fiscal policy can act as an automatic stabiliser of the economy (Török and Veres, 2011). The insistence on the transparency of fiscal policy decisions and actions may mean a lower likelihood of sustainability. The independent fiscal councils may increase the degree of domestic and international credibility of the national fiscal policy.

5. The Case of the United Kingdom

An independent fiscal institution is able to function properly if it is owned by its mother country. Governments suffering from fiscal alcoholism depend most on markets. Coherent self-discipline anchors expectations and insures fiscal independence. Credibility cannot be imported thus a domestic owned fiscal framework is needed. The rule-based fiscal system (including fiscal rules and supervisory bodies) is successful if the applied measures are able to improve the structural balance and the sustainability of national debt (Kopits, 2011). Normally, the jurisdiction of an independent budgetary committee should cover the following: observing budgetary laws, supervising transparency, rating the sustainability of national debt and fiscal directives, making macro-fiscal prognoses, defining planned measures and differentiating normative and decision-making functions. Finally, it has to communicate with public opinion (Kopits, 2011).

After 2000, more and more countries (like Sweden and Hungary) have established such fiscal institutions. Budgetary rule systems were reinforced in Germany, Romania and Poland. Independent controlling institutions were founded in the UK, in Slovenia and Romania. Furthermore, initiatives were started to establish independent budgetary institutions in Ireland, Portugal, Slovakia, Finland, Cyprus and in the Czech Republic. The purpose of establishing institutions is to assure the sustainability of national debt, to maintain budgetary discipline, to keep government budget deficit on level and to ensure the transparency of budgetary process (Simon Wren-Lewis).

In the UK, the conservative party lodged to establish Office of Budget Responsibility (OBR) in 2008. Several studies were written about the operating principles of council such as by Kirsanova et al. (2007) and Besley and Scott (2010). The first measure of new conservative / liberal party (which has been in power since May 2010) was to establish a temporary institution (OBR) led temporarily by Sir Alan Budd. During their operation, a preparatory report for the first budget and a crisis calculation were made. In July 2010, thanks to the recommendations of Sir Alain Budd and those of the Treasury Select Committee (TSC's) and also the commentaries of Lars Calmfors, the head of Swedish budgetary committee, a debate was initiated about the temporary structure of the OBR.

The budgetary committee in England was founded during the era of Great Depression using fiscal policy with narrow jurisdiction. The OBR works as complementary to fiscal rules. The macroeconomic prognosis of the English institution can influence the budget. At the same time, the close relationship with ministry of finance means a danger factor to transparency, thus it decreases the trustworthiness of analyses (Calmfors and Wren-Lewis, 2011).

The OBR has three full members. Two out of these are academic experts. The third member functions as a governmental expert. Members are elected for five years. TSC has a right of veto when choosing members. The committee responds to the government, but it is also under parliamentary supervision. The institution responding for budgetary discipline is only half-independent in England. The ministry of finance can ask the OBR to prepare analysis about different areas of economic policy, but the committee can decide, after considering its jurisdiction and financial resources, whether to make these reports or not. Although it is not obligatory, the OBR has the possibility to consult the ministry of finance while preparing the reports. The English committee on member level is independent of politics, because the members can be recalled and their mandates are prolong able. These options reduce political independence.

„Hard" institutional form can be found in Sweden, Belgium, in the Netherlands and in the UK. These „hard" controlling institutions of budgetary policy are able to increase the trustworthiness of fiscal

policy both from domestic and foreign points of view. The advantages of these methods are that they decrease the costs of sovereign debt-financing (Debrun, 2011). In USA the Congressional Budget Office (CBO) responds to the Congress. In all the other countries the fiscal institution responds to the government or to the Parliament. Reporting commitment itself does not affect the political independence. On the other hand, the way members of fiscal institutions are nominated or recalled and their jurisdictions changed do affect it.

6. The Case of Germany

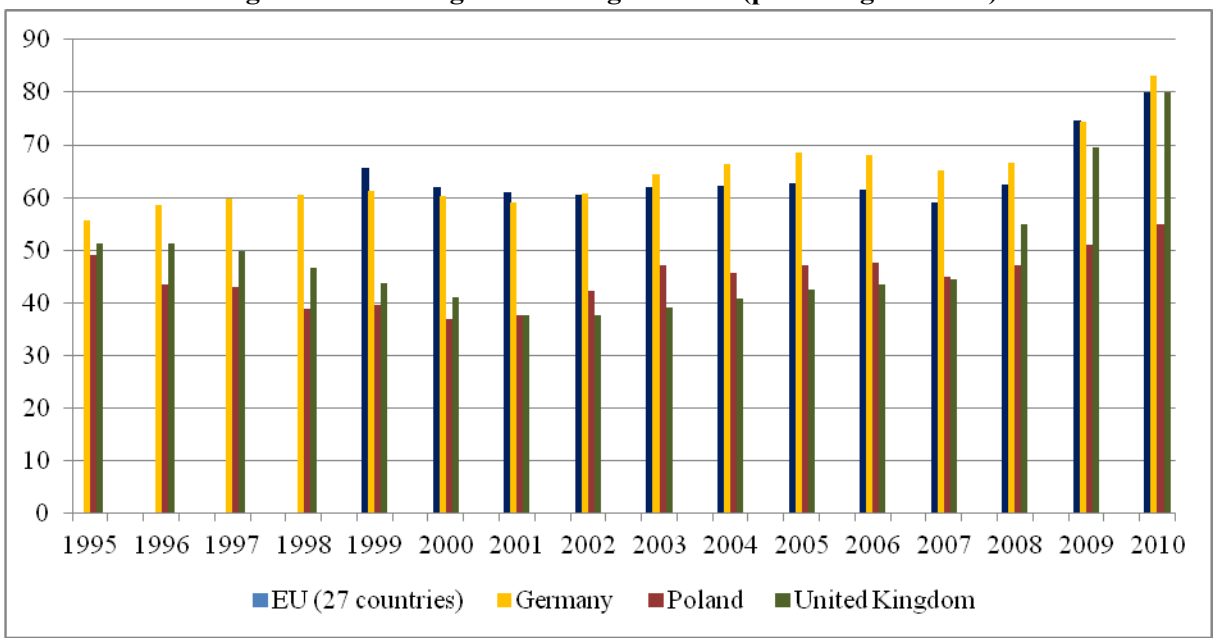
In Germany the so-called Golden Rule (which limited current expenditure and was tied to the level of gross investment) was initiated in 1969. This was the first independent budgetary rule. Golden Rule forbids financing current expenditure from credit and it only allows deficit financing in the case of national capital investment (Benczes and Váradi, 2011[9]). The main advantage of this rule is the fact that it ignores the depreciation of investments. The rule does not count the net growth of capital stock contrary to the fiscal rule applied in UK, which refers to traditional net investments.

In 1990 Germany has already applied rules for fiscal sustainability well before switching to the Euro. As the greatest investor, Germany's role in crisis management is undisputable. Unlike the discretionary economic policy used earlier, the rule-based economic policy seems to be more acceptable in answering the new challenges of crises. It turned out that discretionary economic policy is able to carry out structural reforms but it inspires some governments to overspend. In the past two years Germany has been carrying out pro-cyclical budgetary policy. In 2002 the country reached the 60 % debt limit, In 2010, as a result of the crisis, the gross debt was at 83,2% of GDP.

As a reaction to the crisis, debt-brake functions as a great example for the members of the EU. Initiating debt rule could have been another alternative (such as in Poland), but in the summer of 2009 Germany was off the beaten track and the country enforced a law about controlling the deficit (structural deficit) of finances[10]. Debt-brake is supervised by the Stability Council (which can be divided into Federal Ministers of Finance and Economy and Finance Ministers of the Länder). This Council contains sixteen provincial ministries of finance and the economic minister of the Federal State. His responsibilities include constantly monitoring and, if necessary, preparing consolidation programs. The Council has no right to punish. The disadvantage of debt-brake is that it can go against the criteria of simplicity and transparency, because it is complex to work with. Whenever the Council considers that a federal or state government risks falling into financial distress, that government has to propose corrective measures. The Council is expected to monitor the implementation of the consolidation plan. Evidently, it is not an independent Fiscal Council, but peer pressure can also be effective (Franco, 2011). The control bill assigned to the German debt-brake constantly forces the government to work out the necessary corrections, hence, forcing politicians to follow the rules (Benczes and Váradi, 2011).

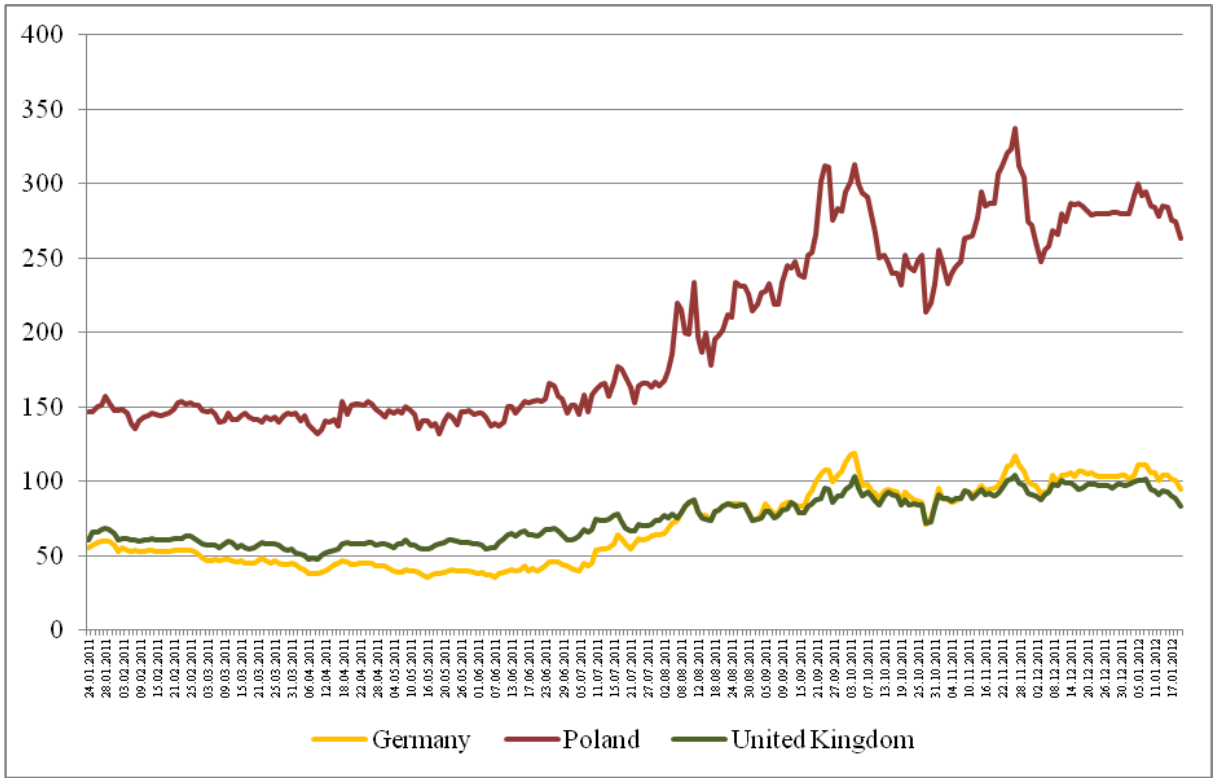
[9] Benczes and Váradi (2011): „Debt-brake instead of Golden Rule: the German case" – These examples are highlighted with using timeline data and shows how Germany changed from Golden Rule to debt-brake.
[10] The deficit rate of structural balance can be 0.35% of GDP on federal level. If this deficit is different from the 0,35% rate, the positive or negative difference is transferred to a nominal account. If the deficit on the control account is above 1,5% of GDP, the government has to appeal correction. This correction must be initiated at the deficit equal to 1% of GDP.

Figure 3: General government gross debt (percentage of GDP)



Source: author's own construction based on Eurostat (2011) data

Figure 4: CDS spreads in Germany, in Poland and in United Kingdom



Source: author's own construction based on Deutsche Bank Research (2010)

The German Council of Economic Experts, CEE (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung) has five members and a crew of thirty members, who possess specialised knowledge of economic theory and experience in the field of economic policy. The Council selects one of its members as chairperson for three years. CEE was established in 1963 with a wide range of functions including macro-fiscal policy. The German Federal Government has to publish his remarks about the yearly report of the council. The CEE is an academic body advising

German policy makers on questions of economic policy. The Council assesses the macroeconomic development in Germany, with the objective of informed judgements in all of the economically relevant institutions and in the public opinion. The Council of Economic Experts is supported by the Scientific Staff chaired by the secretary general. The Council resorts to the Laision Office at the Federal Statistic Office in matters of organisation and statistics. The Council has two main roles[11]: to analyze the economic situation, to produce forecasts for the economy and public finances. CEE assesses and evaluates the fiscal transparency (ex-post and ex-ante) and the fiscal sustainability. The Council scrutinises the ways and means of ensuring sustainable growth.

In support of these activities, CEE undertakes a variety of research projects through a year. The Council publishes an Annual Economic Report which is released in mid-November and also prepares ad-hoc Special Reports. Since 2005, the Council has also been compiling Occasional Reports on selected topics upon the Federal Government's request.

In Germany the law does not provide the possibility to fire a council member likewise in the UK, where the consent of the Treasury Select Committee in the Parliament is required. Germany is an in-between case (between the Dutch CPB and OBR in the UK). The German Council is instructed not to give recommendations on specific policies, but recommendations are given nevertheless in contrary to OBR in the UK, which is explicitly forbidden to undertake any analysis of policy options (Calmfors, 2011). In Germany the composition of Councils is made up of only academics. The period of office is five years in Germany and also in the UK. The fiscal councils in Germany and in the United Kingdom make their macroeconomic forecasts. The German council evaluates the quality of the government forecasts in the budget bill.

7. The Case of Poland

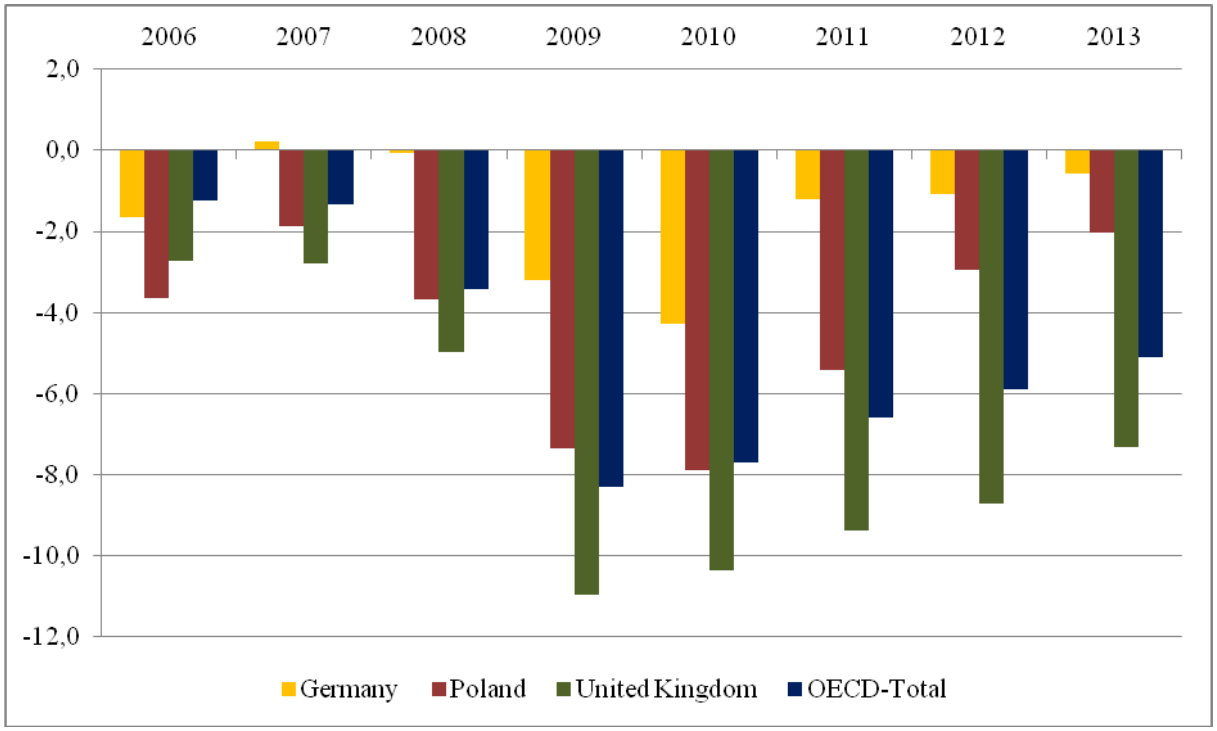
The Visegrád countries, compared to developed countries, have greater GDP fluctuation, significant deficit deflection and higher current account balance deficit. Visegrád countries depend more highly on foreign capital (FDI) inflows than the more developed Western countries. Corruptions on a high level, lower tax potential, higher tax evasion are some of the characteristics of these countries. The enforcement of law abiding behaviour is inefficient. Compared to more developed countries, the national debt is lower and the growth potential is higher. It is also important to highlight the differences in development. In the case of a developed country the debt rate which the investors are willing to finance, is higher. Resources used efficiently can also affect the development (Ódor and Kiss, 2011).

Still, the economy of Poland differs from the economies of the other Visegrád countries: its economy is much larger, more diversified and it is the seventh most populous country of the EU with the population of 38 million. Due to the more closed economy and larger inner market, they better counteracted the effects of the crisis. Poland chose the rule-based solution to be able to carry out sustainable and transparent fiscal policy. On the other hand, in Germany and the UK the institutional solution dominates. Poland used the „small steps" policy to handle the crisis. Investments were at the centre of its growth[12]. The country managed to create a budgetary law that is able to forestall the increase of sovereign debt. It has a loose fiscal policy unlike earlier when a strict fiscal policy was used. It has an increasing sovereign debt, but it is lower in comparison with other regional countries.

[11] Source: http://www.sachverstaendigenrat-wirtschaft.de/14.html?&L=1 (02.01.2011)

[12] For example: stadium and highway building, environmental developments, bridge constructions, mega-investments and preparation for Euro Football 2012.

Figure 5: Government deficit - Net lending/net borrowing as a percentage of GDP, surplus (+), deficit (-)



Source: author's own construction based on OECD (2010, 2011) data

The Middle-Eastern European countries inherited different levels of sovereign debt from the previous regime. These countries adopted different debt policy in the 80s and 90s. At the beginning of the 80s Poland became practically insolvent which led to the shutdown of import for years. In 1990 its debt was above 20 billion dollars (16 million after deducting net reserves) which was equal to 65% of GDP (Palócz, 2010). During the regime change the creditors let off most of the debts of Poland and Bulgaria[13]. Still the debt level of Poland remained high. In Poland from the 2000s to 2009 the rate of public expenditure was approximately equal to 45% of GDP.

The political situation in Poland (the same as in the Czech Republic) is a little bit instable, the trustworthiness of government and public confidence is not constant, the political structure is shapeless, and the structure of parties is continually changing. In Poland there is a pure rule-based solution: strict and constitutional fiscal rules apply. In the country a debt related fiscal rule is in force since 1997. In this states that sovereign debt cannot overstep the 60% limit. A law about public finances complements it with more regulations. If national debt is between 50 and 55% of GDP, the deficit cannot overstep the actual year's deficit in the next year. If sovereign debt is between 55 and 60%, a new budget must be adopted, which then prevents the growth of debt rate. If sovereign debt is above 60%, the government cannot carry out deficit financing. The finances must be balanced.

Reaching the balanced position of finances is improbable, but there are institutional, political and social bases of holding the deficit in check. Using debt rule is popular all over the world. Its advantage is that it stabilizes the debt rate on a predetermined level. This helps to achieve sustainability. There is no escape clause in the case of overspending. But in 2003 and in 2010, the rate was above 50% thus a new budget law was adopted. This specifies that the level of budget revenue in two years time cannot

[13] Poland with the help of the London and Paris Club obtained the following: part of its debt was let off, part was rescheduled and its payable interests were reduced. USA released 70% of its liabilities against Poland. It also got a favourable stand-by credit (on the basis of the agreement with IMF from 1994) (Palócz, 2010).

decrease. The government reduces the debt-to-GDP ratio under 60% with the help of consolidation programs[14]. In Poland the crisis management is carried out through the following measures: using reserves, rearranging budgetary sources and continuing structural reforms (Wisniewski, 2009). If world economy is not affected by greater shocks, Poland (from the Visegrád countries) can outride the crisis with the least detrimental effects. The explicit Polish economic policy was not enough for the country to back itself out of the effects of the crisis. Nevertheless, economic fallback will not be as considerable as in other countries of the region.

Two of the countries examined in our studies are not part of the EU zone (the UK and Poland). Poland has a pure rule-based fiscal policy while in Germany and in the UK legal actions are complemented by institutional confines. In these two countries the demand for balanced budget has an important role (Győrffy, 2008). In Germany and in the UK, electors enforce fiscal discipline by punishing the government when this does not carry out acceptable economic policy. In these countries there was economic stability until the 70s and 80s. Poland inherited a serious amount of debt. Weak budgetary position, great amount of national debt and significant governmental redistribution are present in the country.

8. Conclusion

A fiscal rule could work well, if the rules are consistent, if the system can be easily operated, but also if it is able to respond to shocks and cycles. The independent fiscal institution will be able to be effective, if it is domestic-owned, non-partisan and accountable. The organization is responsible for compliance budget rules, transparency, oversight and public debt sustainability, assessment of the macro-fiscal projections and the separation of the regulatory and decision-making functions. Its main task is to establish communication between public and policy makers. The fiscal framework will be successful, if it improves the structural balance and public debt sustainability.

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[14] From 2011 the law of finances initiated expenditure rule which is in effect until the country will be removed from the EDP. This means that the yearly real growth within the discretionary range of budget expenditure (approximately 5% of GDP) has to be only of 1%. (Kopint, 2010).

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Current challenges and possibilities to control state's role in Hungary

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The present study deals with the role of the state in the economy and the possibilities to control this role. Measurability of efficiency and the Hungarian characteristics of the role of the state are in the focus of this study, but these issues are organically linked to the notion of transparent economic management. The present study presents the place and the forms of state role from a hypothetical perspective, and then unfolds their practical application through Hungarian examples.

Keywords: state tasks, state role, control of community expenditure, efficiency of public administration, internal audit of the budget

1. Introduction

Re-interpretation of state's role, investigation of its functions, and, at the same time, criticism of its burden-bearing capability and its excessive role or excessive standoffishness with regard to the distribution systems is an ever increasing tendency in public administration and public service. The above dispute has become calamitous since the crisis in 2008.

Whose task it is to execute a task, who shall finance its implementation, who should regulate and control its implementation and who shall actually perform it – these questions are often raised in the current Hungarian legislation process. In the meantime, we are talking about a strong country, the notion of a cheap state, efficient public administration, and new public service models, we are looking for efficient ways of utilising tax money, and compare Hungary to the public administration and public service systems of other countries on the basis of several indicators.

In my article I investigate how the modern, 21st century public service role of the state can be harmonised with the economic challenges and problems of using public money, and the road taken by contemporary Hungary in this theoretical context. In my article I try to find the correct answer to the following question: What and how shall be examined, analysed, controlled and quantified with regard to the role of the state?

2. The place and role of the state in modern economy

Hungarian professional literature (Muraközi, 2009; Fekete and Szigeti, 2005; Sárközy, 2006; Báger and Kovács, 2007; Bara and Szabó, 2000; Hoós, 2002; Bod, 2002; Veress, 2001; Jenei, 2008; Voszka, 2011; Csaba, 2010) deals in great details with the place and role of the state in the economy, examines its historical and political aspects, analyses its methods, models, and implementation by countries, sometimes also by means of comparative-analytical methods. The very same issues are discussed in the international literature from many more angles and a dozen of approaches[1].

[1] See in more details and in a collected form in the publications of Voszka (2005) all those opinions and trends which have been published by the international scientists in this subject matter.

However, the large theoretical categories of the forms of state[2] presence are basically uniform. These large collective categories – like concepts and trends[3] – are the following:

- We are talking about a night-watch state in those cases when the state only has a minimum role in the economy and, at the same time, also in the regulation of the society's life. Guarantees the legal frameworks, regulates the economy, and assures the goods which can not be privatised, namely the purely public goods, like maintaining the state of law (legislation, jurisdiction), performing the tasks of defence (home defence, law enforcement, civil protection, disaster prevention, etc.), maintaining the operability of macro-economy (bank system, issuance of money, management of economic policy, fiscal measures, etc.), and performs the duty of institutional protection related to the protection of basic rights (including jurisdiction, operation of prosecutors' offices, etc.).
- We can talk about a welfare state when allocation and redistribution reach a significant extent, namely, when the purpose of economic policy is to continuously increase the feeling of comfort of the citizens simultaneous with levying relatively high taxes, in other words, the endeavour to reach equality, realise full employment, expand the system of social provisions, promote solidarity, realise extensive and comprehensive education, promote housing so that all these activities are organised and managed by the state, but financed by tax money collected from the citizens.
- The state structure is called service providing when the state adjusts itself to the needs, requirements and culture of the nation, and provides certain services with wide access so that the burdens (costs) of these services – along the lines of certain principles - are divided among the inhabitants, the economy and the state budget (for example: operation of the e-administration system, government portals, etc.).

Each state defines the principles, decisions and trends to be followed in its economic policy, structure of power and the interpretation of public policy. Defining the weight, scope and extent of the regulatory, welfare and service providing roles is also a part of this (Hoós, 2002), (Veress, 2001).

When we want to define the size and extent of the state's role, we also have to investigate those roles which can not be delegated from the state, namely the inherent roles[4] (Kovács, 2009). Inherent state tasks are those activities which are provided by the state due to its force of power and not as a service. In this sense, the authority tasks, legislation, law enforcement, defence activities, diplomacy and representation type of tasks fall, in the first place, into this category. These tasks may not be left upon the actors of the private sector, in other words, they may not be delegated, outsourced, given in concession, and no PPP programmes can be launched for this purpose. In principle, the provision of all the other services might be delegated, namely might be entrusted to economic associations, a group of

[2] In my paper, the expression „state" is always interpreted as a collective term, including central administration, social security funds, earmarked financial funds, local governments, public foundations, economic associations owned by budgetary organisations, public entities, in other words, all those organisations, agencies, offices which manage and use budgetary funds, if you like, tax money, EU funds, contributions, duties, etc. for the benefit and interests of their own citizens, the members of the community.

[3] It is of utmost importance to declare, already in the beginning of the article, that here I am writing about the modern interpretations of economic policies, namely operational models of the state and not about ideologies, schools, and not even about state tasks and functions. For this reason, stabilisation, as a function, does not appear on my list, and the above list does not correspond either with, for example, the conservative versus liberal approaches.

[4] The term „inherent" is of Latin origin, and its precise meaning is: inseparable, may not be deprived of something, forms an integral part of something.

private individuals, social organisations (NGOs)[5]. Another issue to be clarified is the party (the citizens, the state, the service provider, or a mixture of the above) paying the costs of providing all these services.

In connection with delegating the tasks we have to note that delegation of the tasks does not exempt the state from the responsibility to perform the tasks professionally, cost-efficiently and successfully. Though the service is provided by a third party, it is ordered by the state, consequently it is the responsibility of the state to control the subsidies granted from public money, and control the quality level, legality, efficiency, etc. of the services provided in stead (on behalf) of the state (Kovács, 2011).

Let us now see some actual practical Hungarian examples for this:

- In Hungary, the courts used to deal with payment summons cases before 31 May 2010, whereas since 01 June, the notary publics are in charge of them. The notary public is a person who is member of the chamber, pays taxes individually, and runs an office. The state delegated the execution of payment summons cases, but kept the right to regulate the legal institution, in other words, the state continues to define how the notary publics shall deal with the payment summons cases and how much their fee shall be.
- Auditors control the annual reports of the economic associations and issue a clause to the report. Auditing is not executed by a government body (e.g.: National Tax and Customs Administration, State Audit Office, Government Control Office), but by private and legal entities, which are members of the Chamber of Auditors. With regard to the co-ordination, quality assurance and supervision of their activities and their training, the Hungarian Chamber of Auditors is in charge, in the first place. However, the state defines, via legislation, the detailed rules and procedures of auditing, operation of the Chamber, public control over the activities of the members of the Chamber, etc. Consequently, the state maintains the regulatory tasks, while the authority tasks are partly delegated to the Chamber of Auditors, as a public entity.
- In the area of higher education, close to 55 investments were executed and are still realised in 2012 in PPP construction, which are not simple infrastructural development activities, but also represent the transfer of a part of the operational services to the private entrepreneur responsible for their operation. Consequently, the state delegates the tasks of constructing and then operating the dormitories, research facilities, etc., while it continues to be the party rendering the respective services, and defining the level, requirements and rules of the services and the university/high school continues to establish the legal relationship with the students. At the same time, the students pay, for example, a fee for the dormitory, contributing this way to bearing public burdens.

The forms of state role and market intervention also show a varied picture. It is evident, that regulation, namely executing the legislative and regulatory tasks, is the responsibility of the state, which, in practice mean the enactment and enforcement of laws, decrees, in summary, the rules of law. By means of regulation, the state defines the possibilities of the market actors, issues mandatory requirements with regard to their scope of movement, behaviour, and legal deals, and sanctions (tax fine, supervision fine, withdrawal of licences, suspension of tax identification number, and in more severe cases, launching criminal procedure), should the above be violated.

[5] At the time of writing the paper, the draft bill terminating the notion of social organisation and introducing the term „civil organisation", which was approved at No. T/4866 in November 2011 was not yet in force.

At the same time, legislation is not the only form of state role and intervention. The state also influences the actors of private economy via the so-called fiscal and monetary economic policy measures and can influence them to change their original intentions, change the value, the term and the scope of the legal deals, etc. For example, subsidies granted from the budget (subvention, transfer), which might take the form of a certain amount of money given to subsidise an investment, a donation with the intention to support a social organisation preserving traditions, subsidy repaying losses after the event in the case of farmers, granting tender money to the operator of a hostel for young tourists, etc. (Jenei, 2008.). Transformation of the tax system, operation of mandatory social security system, interest-rate policy, and direct foreign currency interventions also represent economic policy elements. The common feature of all these forms is that one or some of the economic actors are better off (save costs, gain extra profit[6]) in comparison to their original situation as a consequence of the state's decision and/or measure (or the lack of it), while the situation, position of the others becomes worse (for example, its product becomes too expensive, looses a part of the income, shall be excluded from a certain market segment[7], etc.) (Major and Szilágyi, 2007).

In addition to legislation and shaping the economic policy, the state has an additional tool to intervene into the circulation of a given economy. And this tool is the foundation of direct companies with state ownership in the background. Prior to the transformation into a new regime, there were state owned companies, which were, at the same time, the symbols and the executors of socialist planned economy. However, it is not alien from the nature of market economy that the state enters the market via its own companies and operates an economic association with the primary aim to gain profit, while undertaking the risks deriving from the rules of the market. In this structure, the state has a dual role:

- investment: establishes a company from public money (typically from tax revenue and state property taken into the company as contribution in kind), withdraws, in the form of dividends, the after-tax profit of the company and receives extra revenue (profit) in the long term (may use this money to finance loss-making state tasks via the central budget). In essence, it is an investment activity, and if we step forward, it is the mainframe financing of certain state services, or a long-term guarantee for debt service, etc. The state can stabilise this position in the long term and in a sustainable manner, if it shapes the environment by other means – typically via legislation – so that the company founded by the state gets into a monopoly position at the marketplace, and its extra profit is used as dividend.
- operation: the state, from its own annual budget, grants a certain amount of money each year to the company to cover the operational costs[8], or concludes a public service agreement with the company and orders a service from it, and the revenue of the service covers the costs of operation of the company. In this case, current operational tasks are not delegated by the state to a budgetary organisation, but to its own company which shall be managed, supervised and owned by the state.

[6] See, for example, the case of MALÉV, which is tried hard to be kept alive by the state with capital injections, loan guarantees and re-purchase since the transformation into a new regime.

[7] See the direct subsidies granted to the companies manufacturing domestic products and rendering domestic services, which put the import companies into a competitive disadvantage.

[8] This is a kind of posterior capital injection, or additional payment, when the state re-increases its capital – existent at the time of foundation, but disappearing in the meantime – to the minimum mandatory level in order to meet the legislative requirement with regard to the proportion ratio between registered capital and equity capital, otherwise a decision should have to be made about the transformation, or in the worst case, termination of the company.

3. Purposes and the real situation of state ownership in Hungary

The driving forces of state ownership can be defined along the following lines:

1. The state intends to solve a problem or realise a task durably within its own competence and via its own organisation, and, naturally, assets (buildings, equipment, vehicles, budgetary subsidies, etc.) are also transferred and attached to this task. The purpose behind is to be able to render the best possible services for the citizens and the users of these services. Classically, these objectives are related to inherent state tasks. For example, public and higher education (university buildings, machinery and equipment, budgetary normative subsidies), but we could also mention healthcare, national defence, and public education services. I also classify into this category the organisations owned by the state and operating from non-negotiable shares, like Hungarian National Bank Company, Hungarian State Debt Management Centre Company, or Hungarian National Asset Management Company[9].
2. The state intends to solve, besides others, the tasks of maintaining public areas, managing the electricity system, public roads, passenger transport, public warehousing, water supply, etc. similar to the above solution, though not in a budgetary, but an economic association form. For the realisation of these tasks, and for this purpose, companies 100% owned by the state were set up[10], but these companies cover their expenses not exclusively from government subsidies but also from the service fees paid by those who use the respective services (waste management fee, transmission fee, road toll, transport ticket price, public warehousing fee, water consumption fee, etc.). These companies represent a part of the stable assets of the state, and are listed in the up-to-date attachment of the Act on state property[11], and, depending on the government policy, they are sometimes taken off, and at other times taken back to the list[12].
3. The state wants to have, temporarily or lastingly, certain resources, things representing national advantages, or the organisation possessing thereof under its own supervision. This way, the state owns the strategic resource, which might be of key importance for the national economy due to state debts, the stability of the financial system, etc. The majority shares of Rába Company were purchased based n such considerations by the Hungarian State in 2011, and the state became a majority shareholder earlier for the same reason in MOL Company, or in MALÉV, and the Post Bank. The specific feature of these situations is that the outsiders are not familiar with the true causes and reasons of the purchase decision, the motivations behind do not become public and reasonable, or suggest secret motivations. Though the programme of the media, the interpellations of the MPs and the different investigation committees also deal with the timely transactions, the diplomatic agreements in the hind and the national security interests usually remain hidden.
4. Finally, the state purchases, with the purpose to provide temporary help and without considerable interventions (in everyday terminology: saves) companies by taking their business shares into state ownership. Similar to business shares, land can be taken into state ownership, and – recently – the property of those defenceless[13] people who drew loans in foreign-currency might also be taken into state ownership. These assets are managed,

[9] At the same time, legal successor of State Privatisation Agency Company, also possessing non-negotiable shares, and two other organisations operating as budgetary organs.
[10] Of these organisations, the local governments also received an ownership share in the case of local economic associations.
[11] Currently, Attachment No. 1 of Act CVI of 2007 on state property.
[12] The case of Regional Waterworks Companies or that of Volán Companies is a good example for this.
[13] That word is regularly used without parenthesis in government communication, while the experts, analysts, and leaders of financial institutions use it in parenthesis, in figurative sense.

transitionally and temporarily, by Hungarian National Asset Management Company and/or National Asset Management Company. As a consequence, the state does not prepare for lasting state ownership in the case of these companies and assets, since the business shares and the assets shall be sold (given back) to the previous or a new owner, should the economic situation become more favourable. In this case, the sole purpose of asset management is the preservation of real assets and organisation of their rational use in order to cover the costs of ownership (reporting system, auditing, remuneration of the members of the Board of Directors, operation of the Supervisory Board, etc.) and to prevent the deterioration of the assets and preserve their status and value.

From the purpose and strategy of state ownership the objective for which the state wants to become an owner in one or the other company is of decisive importance and should thus be controlled and clarified. Consequently, the category where a concrete legal deal falls of the above-mentioned ones together with the concrete objective of ownership, the expectations of the state and the way the given piece of asset is used for the benefit of the narrower or wider community should be clarified.

4. Successful, efficient and economic way of state (community) ownership

These days in Hungary, community property and assets have a number of owners. While up till now, in my paper, I have spoken, in a simplified manner, only about the state, we have to admit, if we consider reality, that community properties are managed by the state (the ministries and the background institutions, and their economic associations), local governments (local, county-level authorities and their associations, companies), sub-system of social security (National Healthcare Fund, National Pension Fund) and separate state-owned financial funds (Labour Market Fund, National Cultural Fund, etc.) as well.

In the case of these organisations – no matter which of the state budget sub-categories they belong to – the purpose of asset management is manifold. Their task is not purely the professional management of the assets, but also the provision of community services attached to the utilisation of the assets for the benefit of the citizens (or migrants, refugees, etc.). It is not sufficient to investigate only the fact whether the assets are still available with all their equipment and in their original value in comparison to the status at the last investigation[14], but it should also be scrutinised whether the state, local government, social security fund, etc. offered the adequate community services (education, health-care, passenger transport, funerals, public lighting, corporate procedures, etc.) by means of the assets. In other words, not only the success, but also the efficiency of state asset management shall be controlled continuously (Kovács, 2011).

We can speak about successful asset management if the real value of the assets remain the same after a certain, examined period, namely the assets did not loose their value, or, in the better case, the value has increased.[15] The term "efficiency" means that valuable (new, fast, etc.) state services are rendered via the utilisation of the used pieces of assets.[16] We should note that the budgetary sector also uses the

[14] Namely, whether there was a loss (or increase) of property, and/or were the properties representing the assets transferred (for example: purchase or sales of real estate, sales or purchase of machinery, their sales and then re-rental).

[15] According to classical definition, success is the relationship between the outputs and the objectives of an organisation (Anthony and Govindarajan, 2009.), namely, it is the extent the set objectives were realised or the relationship between the intended and actual effects of an activity.

[16] According to classical definition, efficiency is the relationship between the outputs and inputs, namely the quantity of output per one unit of input (Anthony and Govindarajan, 2009.).

criteria of "3rdE"[17], which means economical[18], like, for example: achieving the objective to minimise one unit of input while preserving the adequate level of services. Namely, it is not sufficient for an organisation to be successful and efficient, but it should also be investigated whether the quality of state services reach the required minimum level (defined by standards, legislation, requirements, etc.)[19].

As a consequence of the above statements, an organisation managing state property and assets and providing state tasks might be:

- more successful, reaching the objectives faster (for example: finishing the construction of a building ahead of time) than planned, namely it is at the disposal of the taxpayers earlier. Similarly, a school is more successful when more students enter the university from that school that from another one (while along the lines of all the other characteristics, like the level of services, number of teachers, methods, etc., the two institutions are the same).
- more efficient, when, in comparison to its previous status or to another organisation with similar assets, it can offer more services. A good example for this is the toll fee, which is the same for two years for those who use the services, but the length of the motorway is longer in the second year than in the first one (new sections were completed), since those who use the motorway may use more kilometres of the motorway for the same price. The motorway management company is also more efficient if it offers a longer section of the motorway than the foreign partners for the same toll fee.
- more economic, when, during the investigated period, the expenditures were smaller (less people, smaller territory, less budgetary subsidies, etc. were used), namely less subsidies, tax money, service fee, etc. were received or collected while the level of services remained the same. A good example for this is the local government which, compared to the previous year, receives less budget subsidy, namely the local budget becomes smaller, while the services (school, kindergarten, cemetery, public lighting, family doctor services, etc.) are rendered under the same conditions and at the same quality level as the previous year.

When applying this „3E" principle, a kind of equilibrium shall be achieved at all times, since it may happen that the efforts to increase efficiency and economy contradict to each other, namely prevail at each others deficit. For example, in the case of a state investment, deadline, costs and technical content are in a closely related, but exclusive relationship with each other, thus the management shall keep in equilibrium these three trends in order to keep public money spending in equilibrium as well.

During the final performance audit of asset management activities we should answer the question whether the given task or process has reached the intended effect and result, with due respect to the „value for money" expectation, which can be best described by the following formula[20]:

[17] It is derived from the initial letters of economy, efficiency and effectiveness.
[18] In the business sphere, there is no difference in merit between economy and efficiency. As a consequence of the above definition, the more efficient is also more economic.
[19] When measuring the performance and evaluating the activities of public administration – depending on schools and authors – besides 3E, other criteria, like equity, productivity, cost-efficiency, streamlining, high level of ethical sensitivity, or social responsibility, service approach, imbedded in national traditions, etc. also appear. In addition to the mathematical approach of 3E, these factors put the emphasis on qualitative work performance and the performance characteristics of state organisations, offices, and/or institutions.
[20] Source: http://www.kormany.hu/download/f/8f/10000/Teljes%C3%ADtm%C3%A9nyellen%C5%91rz%C3%A9si%20m%C3%B3dszertan.doc , pages 9-10, 14 November 2011.

	$\frac{Input}{€}$	×	$\frac{Output}{Input}$	×	$\frac{Outcome}{Output}$	=	$\frac{Outcome}{€}$
3E:	economy		efficiency		effectiveness		*Value for Money*

The three categories might be analysed together and separately. During the performance audits, always the auditors define, based on their information obtained during the preparation phase, the performance category offering the highest value added and the interpretability of the issue in question within the defined performance audit context.

Performance audit and the implementation of „value for money" principle have directly measurable quantitative criteria in the area of using public money and in the public sector in general, thus these evaluation criteria have to be defined in accordance with the given topic. One of the characteristics of the budgetary systems is that no adequate criteria and index-numbers are attached to the objectives to be achieved. For this reason, the success audits can define the level of concurrence of the actual status with the planned and defined objectives only on the basis of analytical, fact-finding and factual procedures adapted to the specific features of the issue in question (National Tax and Customes Administration, 2011).

5. Auditing aspects of state role and asset management

- Market analysis: With regard to the role of the state we should clarify who the buyers of the given service are and who are the suppliers in the given market segment, and – in the case of state ownership – who pays the costs and whether there is any competition in the given market segment. As we have already seen before, in the case of inherent state tasks, there is no possibility, or rational argument to outsource the task and/or to order it under market conditions. At the same time, a part of the public goods are not produced by the state, but, in stead, are ordered from the business sector, while it is possible that another organisation – also owned by the state – would be more suitable for the execution of this task (Voszka, 2005).

In general, the buyers of state services are the citizens as private individuals, or the companies of the business sector, but it may also happen that the state renders internal services to other state agencies as well. Typically, the citizens and actors of business life use these services, and they pay service fee, or procedural duty, or a kind of compensation, or contribution for them. Examples: public transport ticket, procedural duty at the land registry, court of registration duty, court fee, etc. The trend of new public management (NPM)[21] strongly emphasises, that in exchange for service fees, the state, being the service provider, shall keep in sight the interests of its buyers and shall render for them the state services at an adequate level and quickly, namely successfully, efficiently and economically. Though the trend of NPM has already been exceeded by a number of new models[22], the new public management programme was the pioneer actor of interpreting state tasks in a transparent, economic and almost market way.

On the supplier side, the co-operation of business organisations is necessitated to perform the state tasks, if co-operation is not needed permanently, requires special skills (not available for the state), or the complex service can be purchased cheaper than the costs of organising and performing it by the state. Typically, the right to become a supplier can be obtained via public procurement tenders, for a

[21] New Public Management, see, in more details: Value for Money in Government, OECD, 2010., see at: http://www.oecd-ilibrary.org/governance/public-administration-after-new-public-management_9789264086449-en (2011. 11. 15.)
[22] See in more details: (Pollitt and Bouckaert, 2011), and explanatory table 1.3 on page 22.

definite period of time, and under the conditions defined in the invitation for tender. The essence of public procurement is that the state, as a safe buyer, intends to receive in large quantities and at a low price, the products/services, in accordance with the rules of procedure defined by the law. Regrettably, as opposed to this, known practices have shown that public procurement procedures take unreasonably long time, and in stead of making the desired goods cheaper, they become more expensive, plus the whole procedure is not transparent and represents the hot-bed for corruption in Hungary[23].

The state very seldom considers whether, under the new conditions, it is worthwhile to outsource, or order a service from the business organisations, or it should rather be rendered by the state. If the outsourced state tasks are continued to be rendered by one single external economic actor, the party rendering the services becomes lazy, and offers low level services to the buyers, and, in addition to this, the buyers have no choice and can not turn to another service provider when the advantages of outsourcing are not manifest; moreover, the outsourced service may easily cost more than it would cost should it be rendered by the state directly, via its own organisation. Consequently, it is the responsibility of the state to create and maintain competitive conditions (if it is reasonable and rational[24]) at the market of the given service, to stipulate adequate guarantees in the service contracts, and to control them together with the service level regularly at its partners (Kovács, 2011).

Consequently, the fees paid by the customers/buyers, the method of selecting the suppliers, and the rationality to obtain certain co-operation activities, products or services from another organisation should be investigated at the organisations fulfilling and/or ordering state tasks.

- Business planning and reporting: In a well organised company, business planning and reporting form part of the internal controlling system (Anthony and Govindarajan, 2009). What and how is planned in the beginning of a period and what their actual revenues, costs are in comparison to the plans, how the assets and resources in the balance sheet reports change, what is the trend of changes, and what, if at all, kind of intervention is need by the supervisory organ, owner, or asset manager – these issues are of vital importance also in the case of state owned, state operated and/or budgetary organisations. For this reason, the quality, structure and breakdown of the financial plan (budget, operational mainframe plan, etc.), the reality, economy, efficiency and effectiveness of the plans prepared by Hungarian National Asset Management Company or Hungarian Development Bank managing state property, and the background institutions reporting to the state are of crucial importance.

Implementation and realisation of the annual, operational plans and different development, investment plans and projects, project plans, and multi-annual business plans is reflected for the owners and managers in the interim reports, and standard reports. These reports indicate the differences, and the trends, thus the key actors shall deal, in merit, with the internal reports of the state owned companies managed by them. For this reason, the following issues shall be investigated: is there a controlling system in the subordinated, managed companies, does the controlling organisation operate, what is the quality, type and breakdown of the interim reports, whom are they sent to, what is the reaction to them of the addressees, what kind of decisions do they take based on these reports with regard to certain issues.

[23] See: (Kovács, 2011.), the declarations of professional organisations, anti-corruption reports of Transparency International and Gallup, the pages of K-monitor.hu and korrupcio.lap.hu in this subject matter.

[24] For reasons of economy of scale (for example: small number of users), significant amount of money needed for the investment (e.g.: hospital), or due to the small size of the geographical region (e.g.: small local government) it is not always possible to involve and compete a number of service providers for the provision of a certain task.

- Remuneration of the management and performance indicators: The objectives and results are in harmony if the operation is successful, economically rational and efficiently uses tax money. In such cases, the managers might be paid bonuses. The conditions and title of payment are defined, besides the legal regulations, in the local agreements, contracts concluded with the managers, but they might also be the subject of annually changing occasional agreements or the resolution of the owners/shareholders. However, they must be written so that the content is clear and can be interpreted the same way by both parties (Voszka, 2005).

While the media and current opposition parties often question the legality of premiums and bonuses paid to top managers, this is a custom in the area of management (including public management and organisations rendering public services). Literature on human resources discusses in detail the methods, elements and conditions of top management remuneration. Information about their titles and amounts shall be put on the homepages of economic associations operating from public money and the respective information shall be updated and accessible for the interested parties, guaranteeing this way transparency and comparability.

In summary we can say that if property management and/or service provision are successful – namely the previously presented 3E are fulfilled – employees in senior management positions are entitled for a certain amount of additional money, extra benefits. In connection with this, however, the amount of the bonus, the objective criteria for payment, the party which measures performance (gets proof of the fact that the money can be paid) and approves of the respective decisions shall be clarified. On the other hand, it should also be investigated whether the set objectives and expected results do actually fall into the competence of the manager in question, can he/she influence them, whether the objectives set for the given period are challenging or realistic (e.g.: are they not too easy to meet) and whether these objectives really meet, indirectly, those of the organisation.

- Internal audit: While external audit of state agencies and private companies operating from tax money is executed by state agencies, authorities and offices[25], internal audit is gaining an increasing importance. Efficient internal audit can contribute a lot to the successful operation of an organisation. By definition, internal audit is a tool and consulting activity giving independent and objective proof, which represents added value for the operation of the organisation and improves its quality. It evaluates and improves, by means of systematic and regulated procedures, the efficiency of risk management, control and management processes, promoting this way the realisation of the organisation's objectives[26].

This activity, at the same time, promotes the maintenance of efficient, successful and economic operation of the organisation, since internal auditors execute performance controls, regularity checks, and system and IT security controls, and identify the critical points in the operation of the organisation with risk analysis.

While the Act on Budget and its execution order prescribes the mandatory operation of internal audit for budgetary organisations, this is worded – with a few exceptions – only as a recommendation for economic associations. The Institute of Internal Auditors (IIA) prepared a detailed documentation and standards on how an optional economic association should be audited internally. Organisation of this

[25] Let us mention some of them: State Audit Office, Government Control Office, Government Commissioner's Office for Accountability, Office for Economic Competition, Authority of Equal Treatment, Consumer Protection Supervision, National Tax and Customs Administration, State Supervision of Financial Organisations, etc.

[26] The quotation is the definition of IIA, namely the Institute of Internal Auditors; their homepage: http://www.theiia.org/ (2011.11.10.)

activity and utilisation of the reports are the task and responsibility of the current top manager. For this reason, systematic operation of internal audit, utilisation of internal audit reports, the answers and responses given to the findings and proposals mentioned in these reports, and management decisions based on these reports shall be investigated in the case of companies using public money and performing tasks of public interest.

- Publicity and civil control: Access to data and information of public interest, existence and publicity of up-to-date information about the budget, and the possibility for the NGOs[27] to control improve the opinion and evaluation about public services and state role (Báger and Kovács, 2007.), (Jenei, 2008).

Civil control is nothing else but promoting access to public data for the interested parties, local communities and the opportunity for local public to participate in decision-making via local NGOs and raising awareness of the citizens about the available legal and non-legal tools in order to facilitate for them to utilise the basic institutions of democracy directly, and, above all, to question and report the decision-makers about the investments, development plans, actions and programmes directly affecting them.

At present, there are about 62 thousand registered NGOs in Hungary, but very few of them admit and undertake consciously and openly the need and intention to exercise civil control over local power and the state. Though a number of nationwide domestic organisations and, earlier, the National Civil Basic Programme itself, offers financial support, professional documentation and experts for this purpose, exercising civil control is only in its infancy in Hungary.

For this reason we should definitely examine in connection with the role of the state whether the decision-makers in charge involve the NGOs, representatives of local social organisations into the decision-making process, including the presentation of the preparation and reporting phase and the causes and consequences of it. Furthermore, it should also be controlled if the state organisation publishes information on its homepage about the use of public money, provides information for the public (including the media), and/or answers the questions raised (Jenei and Kuti, 2010).

We should note that Hungarian civil sector – as the third pillar – undertakes significant state tasks, uses, for the purpose, a large amount of private, corporate and foreign funding and also posses an extensive network of volunteers (Hoós, 2002). In the present study, I do not deal with the control and audit of the tasks undertaken by or transferred to the civil organisations (NGOs), but I mention that the associations and foundations, via their public benefit activities, contribute to the state's role, and as such, their activities and operation shall be promoted and, at the same time, controlled.

6. Summary, closing thoughts

In the first part of my study I present the macro-political role of the state, show a detailed picture about the role of the state in the economy, together with its methods of intervention and objectives. I have clarified that the state can exert an influence on the economy in different ways, depending on the objectives and ideologies defining its actions.

[27] Namely: foundations, associations, their alliances, which perform their control and audit activities in the given professional field from a different perspective, along different interests, in accordance with tier own professional devotion and mission, presumably, for public benefit (there are counter-examples as well!).

On these foundations, I analyse, in the second part of my study, the performance criteria of state services provided by state companies and budgetary organisations from the perspective of efficiency, economy and effectiveness or success.

Finally, in the third part of my study I describe control elements and activities, by which the economic associations and budgetary organisations can contribute to efficient and effective operation presented earlier. Such tools and methods are: market analysis, internal audit, planning and reporting systems, and exercising civil control over the operation of organisations.

In my opinion, this way we can better understand and test the cost-saving nature of modern state, and the conditions for service-providing, streamlined, successful state role and asset management offering public welfare.

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The role of Supreme Audit Institutions in fight against the consequences of financial and economic crisis
A theoretical approach

Sándor Nagy

There is a significant pressure on Supreme Audit Institutions in Europe: shrinking available resources and growing expectations from its stakeholders (citizens, civil organizations, investors, governments etc.). In consequence of the financial and economic crisis and the unpredictable shocks, imbalances there is a relevant need for good governance and effective spending of public money. The Supreme Audit Institution (SAI) – as independent external auditor of the budget – is intended to reach appropriate level of audit impact by using its inputs. This impact may result lower governmental expenditures, effectiver public finance management, increasing trust, transparency and accountability. Responding to the constantly changing circumstances the SAI should use and activate non-conventional resources such as knowledge and social capital to be more adaptive, effective and to achieve its strategic goals.

Keywords: financial and economic crisis, cooperation, Supreme Audit Institutions, ECA, INTOSAI

1. Introduction

The global financial and economic crisis and its intensifying aftershocks are still hitting the EU's economy clouding the long-term outlooks. It has been the most pervasive and deepest turmoil after the Second World War and the process of recovery seems to be long-lasting, risky and fragile. The wide-spread downturn (solvency and later systemic crisis) - which can be dated from the Lehman-Broder's bankruptcy (September, 2008) caused basically by the huge delinquency rates and subprime writedowns induced by the burst of the U.S. housing bubble - penetrated into the global financial channels reaching firstly the U.K. then the rest of the European Union. The money, the capital and the interbank markets had been paralyzed because bankers ignored to lend credit even to each other. In consequence of the triggering circumstances the Member States had to face squeezing credit conditions, sharp output contraction, decreasing business investments and capacity utilization, ailing exchange markets, share prices, rising unemployment, lacking resources on innovation and R&D activities, falling house prices, melting household wealth, slumping consumer and investor confidence and trust or even the nightmare of an accelerating economic downward spiral, which the social burden of ageing could further stimulate. So the governments, the European Union's decision makers, the European Central Bank in cooperation with the national issue banks had to take significant, efficient, timely and prompt policy responses to react on the worsening problems. Central banks launched stimulus monetary actions and shortly after that - in accordance with the monetary packages - governments intervened to support banks affected by the stress and to boost the real economy. The wide range of stimulus packages were primarily based on the pillars and principle of the European Economy Recovery Plan (EERP) reaching a total sum of ca. 2% of EU-27 GDP – of which two-thirds were implemented in 2009 and the remainder in 2010 (EC, 2008; EC, 2009a, p. 14; Jackson, 2009). These public spending and new governmental commitments fell in the audit scope of the national Supreme Audit Institutions (SAIs) which are responsible for the external, independent auditing of the state budget and the executive actions. The changing financial-economic background has been posing new challenges for the SAIs too. In the next sections I demonstrate the functions of the external auditor institutions related to the crisis (INTOSAI, 2009a).

2. General Auditing Functions and Features (GAFF) of a SAI and the expedient, necessary auditing activities during the crisis

The supreme audit institutions (SAIs) have the mandate on national level to conduct external audits to serve the taxpayers' and citizens' claim for rational, efficient, effective, legal spending of public money. These organizations predominantly characterized by independence, professionalism, probity but often with different mandates and access rights. Through audit activities and extension of SAI's functions the financial accountability, the good governance, the proper management of public funds could be enforced and in the same time the confidence towards budgetary organizations can be maintained or restored. For successful operation, and to generate added value of its reports there are several factors must be considered: adequate funding, facilities, compatible staff and other professional capacities, the adoption of international standards (e.g. ISSAI standards), supportive environment, cooperation, knowledge sharing with other SAIs and specialized organizations (World Bank, 2001; INTOSAI, 2009b). In case of effective function the government expenditures, the general level of corruption can decrease, while the perceived government effectiveness, the competitive pressure on executive bodies and the general productivity of resources could grow (Blume and Voigt, 2010; Kovács, 2010). The SAIs generally have the following types of audits to apply (*auditing mandate*):

- *regularity audit, financial statements audit* or *financial audit* (ISSAI 100 – 39): the SAI assesses the legality and accuracy of the financial statements, operations of government bodies and the related financial accountings.
- *performance audit* or *value-for-money audit* (ISSAI 100 – 41): it covers the evaluation of usage of public money considering the economy, efficiency and effectiveness criteria; the auditor examines whether the taxpayers have received value for public money.
- *comprehensive audit* (ISSAI 100 – 43.): it exceeds the limitations of the regulatory audits by focusing on the internal management and regulatory system including the control mechanism (ÁSZ 2008, p. 174; INTOSAI, 2001).

Accepting the taxonomy of the National Audit Office of Finland (*Valtiontalouden tarkastusvirasto*) the management of the crisis can be divided into five different stages. In the next sections I draw up the characteristics of responses and possible tasks of the auditor referring to the Subgroup 2a[1] report (National Audit Office of Finland, 2011). The categorization of this document is very similar to the European Commission's study[2] (EC, 2009a) but this one is focusing rather on (auditing) professional aspects. The basic presupposition of the Subgroup's work is that the existence and well-functioning of a certain regulatory system is essential to avoid future crises or at least reduce the probability of the emergence. The financial regulatory system consists of Central Banks, Government institutions and other special regulatory institutions whose activities could shape and adjust the rules.

I. Preparedness: this is the status or condition of the regulatory system before the turmoil starts. The main desirable nature of the regulation is the preparation, the maintenance of appropriate level of risk observation, risk assessment and management of the hazard. Here must set out the pillars, foundations of the government actions for the following phases.

[1] Member SAIs of the INTOSAI Task Force Global Financial Crisis Subgroup 2a: Finland (chair) – Valtiontalouden tarkastusvirasto, Austria – Rechnungshof, Estonia – Riigikontroll, Netherlands – Algemene Rekenkamer, United Kingdom – National Audit Office, United States of America – Government Accountability Office and Denmark (observer) – Rigsrevisionen

[2] Stages in the EC's study: crisis prevention, crisis control and mitigation, crisis resolution

The crisis-related auditing functions and features (CRAFF) of an individual SAI related to the preparedness (National Audit Office of Finland, 2011):

- The mandate of the SAI is determinant in the impact of its work. Only 70% of the EU Member State SAIs have mandate to audit the governments' rescue packages (Caldeira, 2009)
- The main objective for a certain SAI is to help creating and operating a flexible and resilient regulatory system.
- SAI should have a continously improved watch dog function on public spending ensuring the fulfillment of the legality, the compliance and the good governance aspects
- The SAI could have a role in auditing (predominantly with comprehensive audits) and giving recommendations to the existence, operation and the adequacy of the control and risk management systems are in place.
- conducting mainly performance audits on the regulatory system
- assuring the quality and reliability of the most relevant financial information
- learning, collecting information, extending knowledge base about the financial markets, actors and the regulatory system
- the SAI should follow and oversee the development of the whole system
- cooperation with other SAIs and institutions to have a proper level of general knowledge which should be extended in case of crises

II. Immediate response: this phase covers the Central Bank's monetary and the government's financial and fiscal actions to limit the extent of the crisis and prevent the financial system from collapsing. For effective interventions it is essential the broad and deep understanding of the unfolding situation, the characteristics and the extent of the remedial actions should be done. This requires an already existing framework for the possible actions which encompassing overall objectives, relevant actors, availability of accurate, reliable information, clear roles and responsibilities and well-designed coordination and reporting mechanisms. In order to get a more accurate picture about the interventions the next table summarizes the main elements of the actions.

Table 1: The main actions put into effect by Central Banks and Governments in the EU

Institutions and the type of actions	Interventions
Central Banks and the European Central Bank (ECB)	- cutting back the interest rates - injections of liquidity in cooperation with the European System of Central Banks (ESCB) - introduction of asset swap schemes - outright purchases of securities - lengthening the maturity of loans granted - widening the range of eligible collateral - broadening the group of counterparties - giving financial institutions access to virtually unlimited lender-of-last-resort facilities
Government actions	- giving guarantees to bank depositors and creditors - recapitalization of financial sector - asset purchases - insurance schemes to protect banks from toxic assets - providing credit possibilities to non-financial institutions - structuring bail-out programs
Governmental fiscal stimulus measures	- investment subsidy - government investments - government consumption - reduction in consumption tax - government transfers - cutting back labour tax and corporate profit tax
Real-economy boosting by the governments – Labour market	- encouraging flexible working time - cutting labour costs to support employment - retraining and activation - supporting households' purchasing power - maintaining, reinforcing social protection - mitigation the impact of financial crisis on individuals
Real-economy boosting by the governments – Investments	- increasing energy efficiency - building physical infrastructure - supporting Research and Development activities - promoting innovation
Real-economy boosting by the governments – Business support	- sectoral supports - easing access to finance

Source: own edited on the basis of EC (2009a, 2009b), IMF (2009) and the National Audit Office of Finland (2011)

If interventions are realized they have direct or indirect impacts on state budget and finally on taxpayers' interest and expectations. Excessive supports often imply increasing financial burdens on citizens. It is commonly accepted, that expenditure of public money on stimulus measures is only justified or eligible when systemic risks emerge. The systemic risk arises from the interconnections, links and interdependencies among the members/elements of the whole financial system, so the contagion (e.g. solvency problems, toxic assets, distrust etc.) could spread over the network of the financial markets threatening the stable function of several institutions and could have undesired effects on the real economy (Dijkman, 2010; National Audit Office of Finland, 2011). Without sound and considerable knowledge which is able to scan the processes on network-theory bases, it would be

very difficult to assess the significance of the systemic risk or any kind of jeopardy. The above listed interventions posed a huge burden on the public sector. To perceive the extent of the spending the next tables illustrate the weights of the actions.

Table 2: Public interventions in favour of the banking sector in some EU Member State (% of GDP) - Extract from the original source.

EU Member State	Capital injections *(effective)*	Guarantees on bank liabilities *(granted)*	Relief of impaired assets *(effective)*	Liquidity and bank funding support *(effective)*	**Total**
Austria	1,7	5,1	0,4	1,5	8,7
Belgium	5,7	16,3	5,0	NR	35,3
France	0,8	3,1	0,3	-	4,2
Germany	1,6	7,3	0,4	NR	6,3
Greece	-	0,4	-	1,7	2,1
Hungary	0,1	-	-	-	0,1
Netherlands	7,9	5,7	4,9	5,8	24,3
Sweden	0,2	8,8	-	-	9,0
United Kingdom	2,6	9,5	-	18,7	30,8
Euro area	1,4	8,3	0,7	0,7	11,1
European Union	0,5	7,8	0,5	3,0	11,8
NR: Not Reported					

Source: EC (2009a, p. 63)

The second table enumerates only effective costs of the public interventions to the banking sector but the approved ceiling of the expendable sources (upper limit of the intervention) were higher. The next table indicates figures about the burdens of some discretionary stimulus actions in the same countries listed above.

Table 3: Policy responses to the economic crisis in some EU Member States (% of GDP) – Extract from the original source.

	Discretionary stimulus (aggregate over 2009-10 - % of GDP)				
EU Member State	Measures aimed at households	Increased spending on labour market	Measures aimed at businesses	Increased investment expenditure	**Overall**
Austria	2,6	0,2	0,2	0,5	3,5
Belgium	0,9	0,5	0,1	0,3	1,8
France	0,2	0,1	0,4	0,3	1,0
Germany	1,5	0,5	0,8	0,9	3,6
Greece	0,3	0,0	0,0	0,0	0,3
Hungary	0,0	0,0	0,0	NA	0,0
Netherlands	0,4	0,2	0,5	0,5	1,6
Sweden	0,4	1,8	0,4	0,6	3,2
United Kingdom	1,7	0,3	0,4	0,2	2,6
NA: Not Available					

Source: EC (2009b, p. 16)

The crisis-related auditing functions and features (CRAFF) of an individual SAI related to the immediate response (INTOSAI, 2010a, b; National Audit Office of Finland, 2011):

- the main objective is to monitor and conduct audits on responses to the financial turmoil
- it should build immediately deployable capacities (human and technical)

- cooperation with national SAIs and other oversight institutions (INTOSAI, EUROSAI, IFAC – International Federation of Accountants, IMF etc.)
- setting up multidisciplinary teams in accordance with the audit challenges the SAI must face
- recurring performance audits on the financial regulatory system
- SAI should optimalize its financial resources focusing on the immediate policy responses
- government should increase the budget of the SAI reflecting on the crisis-related auditing functions but it has to maintain the independence
- SAI should activate conventional and non-conventional resources to meet the additional expectations of citizens
- supporting decision makers
- SAI should harmonize the overlapping audit tasks with internal auditors
- delivering directed, relavant and timely information, audit reports and opinions (transformational function)
- usage of modern media channels to distribute information (e.g. official website dealing with the immediate responses)
- to ensure the integrity, transparency and the „same quality" of data stemmed from several sources
- to avoid confusion and unprovoked, superfluous fears

III. Management of the crisis: This phase can be described by insolvencies, bankruptcies, melting capital stocks and the sustained economic depression. To demonstrate the freezing of the economy the following table draws up some characteristics of the negative trends.

Table 4: Economic indicators reflecting the impact of the financial crisis in EU-27

EU Member State	GDP growth 2009	Fall in industry production index (2009.II./2008. II.)	Change in unemployment rate (from 2008 to 2010)	Private consumption growth (2009-2008)	Budget balance 2010-Budget balance 2008	Government debt ratio 2010
Austria	-4,00	-14,60	3,30	-0,80	-4,90	75,20
Belgium	-3,50	-19,00	3,30	-1,70	-4,90	100,90
Bulgaria	-1,60	-17,40	2,20	-5,10	-1,80	17,30
Cyprus	0,30	-5,10	2,20	-6,00	-3,50	47,90
Czech Republic	-2,70	-20,30	3,00	-2,70	-3,40	37,9
Denmark	-3,30	-11,83	3,30	-1,50	-7,50	33,70
Estonia	-10,30	-30,22	8,60	-5,20	-0,90	7,80
Finland	-4,70	-19,91	2,90	-3,40	-7,10	45,70
France	-3,00	-19,26	2,90	-1,20	-3,60	86,00
Germany	-5,40	-20,58	3,10	-0,40	-5,80	78,70
Greece	-0,90	-4,9	2,00	-1,80	-0,70	108,00
Hungary	-6,30	-25,45	3,40	-5,90	-0,50	82,30
Ireland	-9,00	NA	9,70	-7,10	-8,50	79,70
Italy	-4,40	-20,71	2,60	-0,80	-2,10	116,10
Latvia	-13,10	-24,16	8,50	-11,00	-9,60	50,10
Lithuania	-11,00	-12,36	10,10	-22,20	-4,80	31,90
Luxembourg	-3,00	NA	2,10	-0,60	-5,40	16,40
Malta	-0,90	NA	1,70	-3,30	1,50	68,90
Netherlands	-3,50	-5,9	3,40	-1,80	-7,10	63,10
Poland	-1,40	-12,36	5,00	-4,70	-3,40	59,70

EU Member State	GDP growth 2009	Fall in industry production index (2009.II./2008. II.)	Change in unemployment rate (from 2008 to 2010)	Private consumption growth (2009-2008)	Budget balance 2010-Budget balance 2008	Government debt ratio 2010
Portugal	-3,70	-15,59	2,10	-2,90	-4,10	81,50
Romania	-4,00	-13,9	1,90	-12,80	-0,2	22,70
Slovak Republic	-2,60	-27,4	2,60	-5,60	-3,20	36,30
Slovenia	-3,40	-21,20	3,00	-2,60	-5,60	34,90
Spain	-3,20	-22,00	9,20	-3,20	-6,00	62,30
Sweden	-4,00	-20,28	4,20	-2,80	-6,40	47,20
United Kingdom	-3,80	-13,90	3,80	-4,80	-8,30	81,70
NA=Not Available						

Source: EC (2009b, p. 13)

In this section the clearly defined goals and responsibilities for different actors strengthen the accountability. For any kind of regulatory institution it is indispensable to be flexible and adaptive because of the specificity of the current downturn and the unpredictability of future crises. The governmental and monetary steps taken in the previous phase - to fight against systemic crisis - and their aftershocks here start to exert the harmful effects supplemented by the retracting forces of the extreme slowdown. These adverse effects are – for example – the distorted market conditions, growing public liabilities and financial commitments, worsening financial positions, higher inflation rate. The most important tasks the executive bodies have to face (National Audit Office of Finland, 2011):

- management of special risks related to the new financial commitments
- understanding and protection of the taxpayers' interests
- keeping in mind the criteria of "*good governance*": consensus oriented activities, participation, cooperation, effective and efficient use of public money, responsive operation, accountability, transparency, equitable and inclusive regulations, following the rules of law (Kovács, 2010, p. 43)
- preparation on the next stage (exit strategies) when the government remove and extract the invested resources

In order to react on the described situation the crisis-related auditing functions and features (CRAFF) of a SAI are the following (National Audit Office of Finland, 2011):

- supporting the flexibility and adaptibility of government institutions
- clear objective settings for the SAI as well
- auditing of the valuation and reporting of assets and liabilities held by the public
- conducting performance audits on how the government institutions manage the new financial commitments
- reporting to taxpayers about the negative and positive effects of the stimulus packages
- maintaning trust, confidence and thereby strengthening social capital

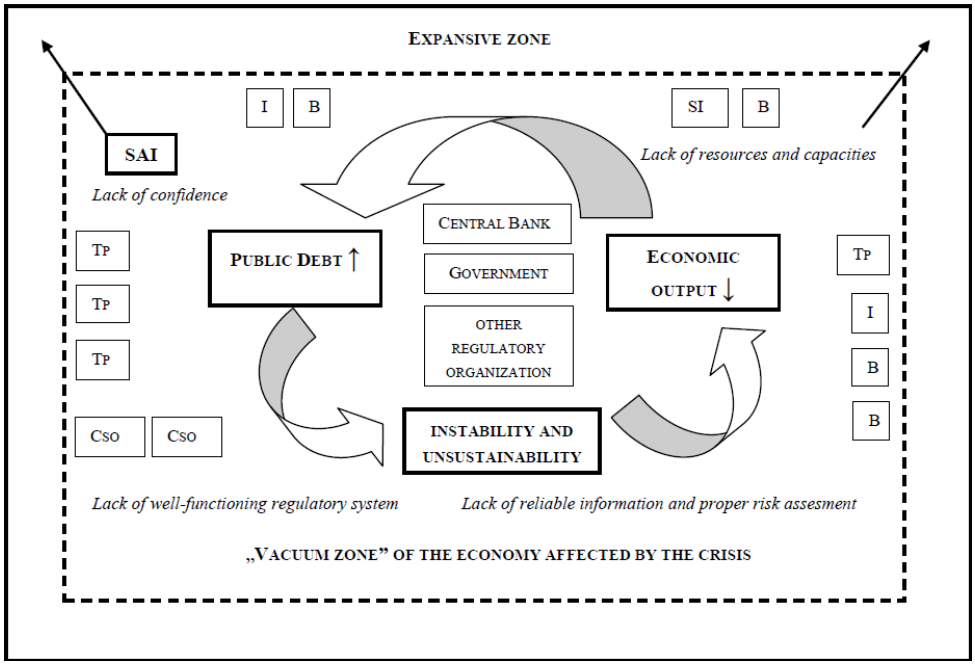
The causes and the harmful consequences of the crisis generate a "vacuum zone" in the economy, which can be characterized by the shortage on important factors (e.g. confidence, resources, capacities, clear information, proper risk management or well-functioning of the regulatory system) which are essential for recovering and to achieve the "expansive zone" where the GDP could grow again. The

main anomalies – hindering the prosperity – crystallizing around three pillars: falling economic performance, increasing public debt, instability and unsustainability. Among these pillars there are strong interdependencies, cohesion creating subversive, devastating synergies. According to the referenced studies and reports several triggering circumstances can be distinguished leading to the development of the main problems (Dijkman, 2010; EC, 2009a,b; Eurostat, 2011a,b; Larsson, 2011; National Audit Office of Finland, 2011; Riksrevisionen, 2010).

1. *Sharp reduction in the EU's GDP*: lower purchasing power of the resident actors; export markets' slowdown; loss of relative positions of competitiveness; innovation may be hampered, impeded because it is easy to cut back in case of recessions; decreasing stock of equipment and infrastructure and become obsolete due to lower investment; reducing confidence of investors; dropping FDI inflows; unemployment and its side effects.
2. *Public debt growth induced by*: fiscal stimulus costs too much; increasing social costs (ageing problem); falling of tax revenues; expensive costs of the external indebtedness due to unfavourable exchange rate trends; worsening credit ratings (Moody's, S&P, Fitch Ratings); inefficient use of public resources.
3. *Financial instability and the lack of sustainability*: contagion effects; increasing global imbalances, capital concentrations; liquidity, solvency and systemic risks; lack of proper risk assessment; risks of financial management; malfunction of the regulatory system; not efficient allocation of financial resources; high and unstable inflation; imbalances in real economy, overvalued assets; lack of trust, confidence; increasing fiscal deficit, public debt and implicit liabilities (e.g. pension system).

The patterns of the vacuum zone which were wove by millions of connections affecting almost all participants in the real economy and on financial markets. The break through mechanisms that result the leaving of the vicious cycle of the financial crisis behind can be supported by the functions of the independent SAI activating all potential resources and possibilities it could have (see Figure 1).

Figure 1: The "vicious cycle" of the financial crisis



TP=Taxpayer; I=Investor; CSO=Civil Society Organization, B=Business organization; SI=Special institution

Source: own edited on the basis of the referenced publications

When the economy starts to find the path back on the expansion and the tempers calm down, the decision makers could take one step forward.

IV. Exit strategies: It refers to the gradual, phasing abolition of the policy measures where the timely exit could save public money. Certain interventions run out automatically (guarantees on new liabilities, guarantees on existing assets) and the rest induce further actions (e.g. recapitalization, asset purchase). Central Banks have to use the method of the gradual withdrawal as well affecting the monetary stimulus paying relevant attention on the international harmonization among National Banks.

The crisis-related auditing functions and features (CRAFF) of an individual SAI related to the exit strategies (National Audit Office of Finland, 2011):

- SAI should assess the risks to citizens about the exit strategies
- new audit task is the evaluation of the selling of public-owned assets
- the auditing mechanism on exit strategies requires performance reports and special skills
- to deliver experiences/lessons to public bodies
- preparation for the future challenges

V. New order: According to the Subgroup 2a report the crisis revealed many weak points, failures in the regulatory system. After analyzing the experiences a "New order" must be created which would be able to minimize the future risks of a possible financial storm. The main problems – which the INTOSAI Task Force Subgroup highlighted, emphasized – were the following:

1. The crisis emerged from the real economy and the anomalies were exponentially escaladed by the false, incorrect risk assessment, misinterpretation of the hazard of derivatives (Collateralized Debt Obligations, Asset Backed Securities etc.) and the failures of the regulatory system.
2. exclusion of social costs, burdens of the depression by the financial institutions
3. not enough knowledge and information about the connectedness of different actors and organization
4. imbalance between safety, resilience, stability and efficiency, innovation, self-interest, profit hunting (National Audit Office of Finland, 2011)

The crisis-related auditing functions and features (CRAFF) of an individual SAI connecting to the new order is very similar to the preparedness phase (see above).

3. Cooperation among SAIs

Although the supreme audit institutions have wide range of relations covering the largest proportion of the economy, thereafter I focus merely on the EU-level professional connections, on the European Court of Auditors (ECA) and the International Organization of Supreme Audit Institutions (INTOSAI) and I shortly summarize only the frameworks of the liaisons. The cooperation (the joint working) is an excellent basis for knowledge creation, knowledge sharing and the flow of the best practices, trustworthy information in the community of the external auditors. As a result of the cooperation the SAIs could use its resources more effectively and finally increase the short-term effects and long-term impacts of its auditing functions.

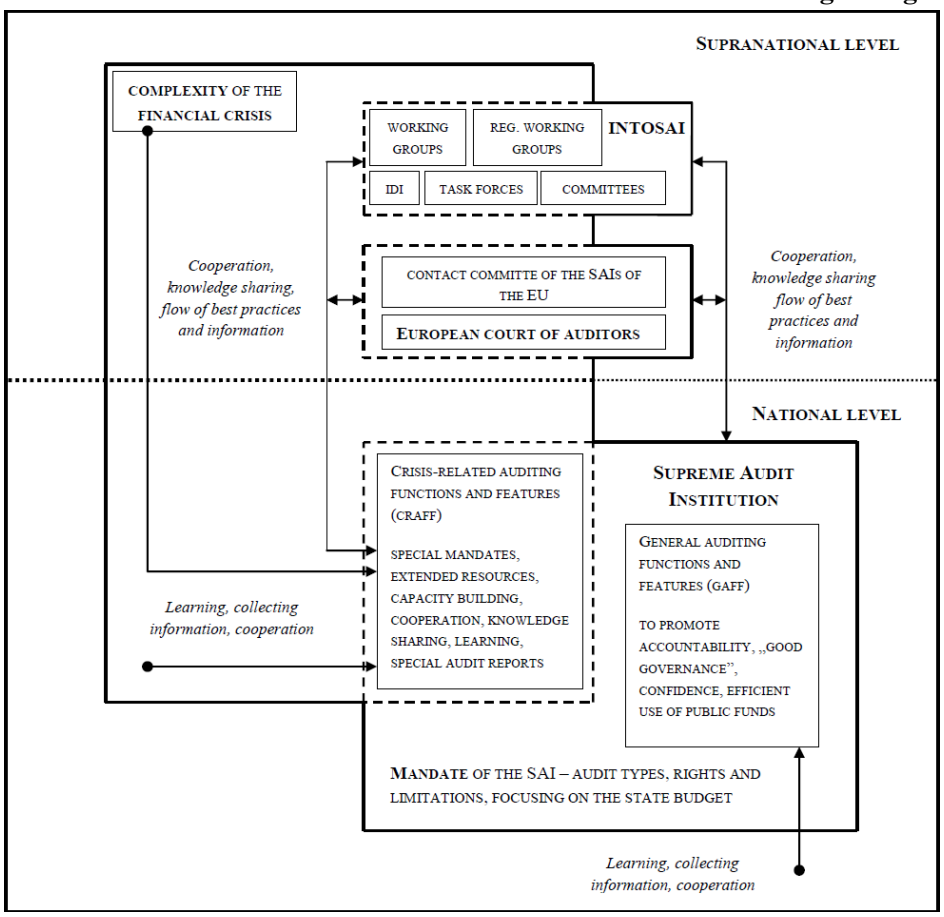
The European Court of Auditors (ECA) – the external audit institution of the European Union – perceiving the importance and the latent opportunities of the utilization of non-conventional resources like knowledge or the social capital constantly strive to enhance to build up closer, more efficient connections with similar institutions. Under the notion of social capital I interpret the positive externalities, advantageous synergies which arise from the formal and informal structures of collaboration, the mutual trust and professional recognition within the SAI commune supplemented permanently or occasionally by other organizations. The ECA pays special attention to SAIs from the EU Member States, the candidate and the possible candidate countries (official web page of the ECA[3]). I distinguish here two types of collaboration: (1) *Regulated audit cooperation*: – regarding the revenues and expenditures of the Community especially the drawdown of EU funds – where the Member State SAI shall to cooperate with the European Court of Auditors in accordance with the Article 287 of the Treaty on the Functioning of the European Union (European Union, 2008). The flow of information and experiences under the aegis of this type of cooperation enable the national external auditors to improve the quality of their operation/auditing work, methodologies and to achieve high-level implementation of the international audit standards (e.g. ISSAI). (2) *Voluntary cooperation*: where the participants recognize the gains of the mutual advantages and try to find different links, possibilities to work together and share special learnings with each other on voluntary basis. The liaisons between the ECA and other SAIs basically takes place within the frameworks of the "Contact Committee of the Supreme Audit Institutions of the European Union[4]" or parallel with this the ECA tries to help facilitating the integration processes of candidate states. The Contact Committee (CC) consists of the presidents of the SAIs including the ECA, the Committee of Liaison Officers and Working Groups dealing with well-defined audit topics. In fact the Contact Committee is an autonomous, independent and non-political framework fostering the exchange of professional knowledge and experiences on the audit activities focusing on the EU-budget and other EU-related issues. The CC held its first meeting in 1960, so the ECA which was established in 1977 could not be among the founders, it joined in 1978. The Committee provides a professional platform to improve the frameworks, conditions for cooperation among national SAIs and the ECA as well as to increase the impacts of audit reports concerning EU public resources. The CC provides several frameworks to reach its strategic goals: meetings[5], workshops, task forces, working and expert groups (some examples are: Working Group on National SAI Reports on EU Financial Management, Working Group on Structural Funds III, Working Group on Activities on Value Added Tax, Expert Group on Audit Quality) (Contact Committee, 2007)

The International Organization of Supreme Audit Institutions (INTOSAI) is a professional organization providing an institutionalized forum for the SAIs from around the world to promote development and knowledge transfer, to discuss specific issues of mutual interest, to increase the added-value of the audits, to disseminate the latest developments in auditing and other applicable professional standards and best practices. It was founded in 1953 and it has 189 full members (including the ECA) and four associate members[6]. INTOSAI recognizes that its strength lies in cooperation, experiences, special capacities and knowledge deriving from the cultural, social, economic and governmental diversity of its global membership. The INTOSAI's motto reflects this creed: "*Mutual Experience Benefits All – Experientia Mutua Omnibus Prodest* (*lat.*)"(INTOSAI, 2007;

[3] European Court of Auditors homepage: http://eca.europa.eu/portal/page/portal/eca_main_pages/home
[4] Contact Committe official homepage: http://circa.europa.eu/irc/eca/sai/info/data/cc_website/cc/index_en.htm
[5] The members of the Contact Committe meet once a year while the liaison officers of the european SAIs and the ECA meet twice
[6] Associate members of the INTOSAI: Association des Institutions Supérieures de Contrôle Ayant en Commun lusage du français (AISCCUF), Organization of SAIs of Portuguese Speaking Countries (CPLP), The Institute of Internal Auditors (IIA), World Bank

INTOSAI, 2010c). The INTOSAI has formed several frameworks for collaboration: regional working groups, working groups, committees, task forces and the INTOSAI Development Initiative (IDI) with special missions responding, reacting to global risks, conditions and with the mission to maximize the efficiency of individual SAIs. Regional Working Groups[7] allow the members to cooperate on regional level. Working Groups deal with specific technical issues in order to meet the member SAIs' expectations. The Committees are entitled to deal with issues of relevant, recurring interest to all member organizations. Task forces operate only for a defined period of time and they will be dissolved when they finish their special tasks. Finally the INTOSAI Development Initiative is responsible for the audit capacity building in which the auditors take part in training programmes, seminars, workshops, regional satellite and partnership programmes in problematic areas of public auditing (INTOSAI homepage: www.intosai.org). To responde the new challenges of the financial crisis the INTOSAI has one working group and one task force in house focusing directly on the causes, consequences and the solutions of the extreme turmoil: Working Group on Public Debt and Task Force Global Financial Crisis. The spatial structure of the cooperative mechanisms is depicted in Figure 2.

Figure 2: Connections of the national SAI with other external auditors regarding the crisis



Source: own edited on the basis of referenced publications

It should be noted, that neither the INTOSAI, nor the ECA does not have supremacy over the member countries and the national SAIs, only horizontal relations can be observed. In the figure the arrows

[7] INTOSAI has 7 Regional Working Groups: Organization of Latin American and Caribbean Supreme Audit Institutions (OLACEFS), African Organization of Supreme Audit Institutions (AFROSAI), Arab Organization of Supreme Audit Institutions (ARABOSAI), Asian Organization of Supreme Audit Institutions (ASOSAI), Pacific Association of Supreme Audit Institutions (PASAI), Caribbean Organization of Supreme Audit Institutions (CAROSAI) and European Organization of Supreme Audit Institutions (EUROSAI)

which pointing in only one direction towards the national SAI indicate that the maintenance of substantive connections with actors and organizations – with the ability to provoke changes in the socio-economic environment – regardless of whether they are in the audit scope, affected by the crisis or not.

4. Concluding remarks

As it was discussed above both the general auditing functions and features (GAFF) and the crisis-related auditing functions and features (CRAFF) require flexibility, special capacities and the utilization of conventional and non-conventional resources. If the SAIs manage to mobilize all kinds of resorts (inputs) and optimize their budget in accordance with the new challenges then they could contribute to the successful governmental crisis-management moreover to the prevention of such anomalies. The establishment of a free access online platform containing databases, audit reports and their follow-up about the GAFF and the CRAFF of a certain SAI could increase the impact of the auditing work, the confidence, transparency and the respect of the SAI. In fact there are some existing electronic web pages dealing with recovery plans or the performance of external auditing (e.g. about the American Recovery and Reinvestment Act – http://www.recovery.gov/Pages/default.aspx or the INTOSAI IDI online database with restricted access to the public: SAI Capacity Development Database http://www.saidevelopment.org/default.aspx) (National Audit Office of Finland, 2011) but they are not concerning about the full complexity of the crisis. The new database should be set up in order to:

- make transparent the everyday operation and resources of a certain SAI
- facilitate the cooperation and the knowledge between SAIs and other actors of the economy
- build or increase citizens' trust and respect towards the auditing community
- grant easy access and availability of the selected (not confidential) data and information which could inveigle academic researchers to analyze the SAIs functions, impacts, relations and embeddedness in the processes of the socio-economic background
- make it possible for SAIs to evaluate the work or reactions of an another SAI on professional basis ("online peer-review")
- increase publicity and in consequence the value-added of audit reports on specific issues
- foster information flow between SAI and taxpayers

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The deficit mechanism of the Hungarian municipalities*

Tamás Vasvári

The management of the Hungarian municipal sector has received special attention since the crisis in 2008 and interest in the sector increased further due to the changes in legislation in 2011. A great number of economy experts and speakers on behalf of the government or the municipalities provided further details on prevailing issues in the municipal sector, however, their assessment of the severity of these issues varied greatly. By describing the logical framework of the deficit mechanism this study aims to evaluate the processes behind the situation of today in order to forecast the situation of tomorrow as regards the management of municipalities. According to the mechanism, if the deficit of a municipal budget (the operating, investment, financing budget or reserves) can only be eliminated by the upward adjustment of financing revenues, it will lead, in the end to increasing municipal indebtedness. Increasing indebtedness, as a rule, results in increasing debt service. Although these expenditures are part of the financing budget, in practice they are usually financed from other budgets. Therefore, increasing debt service can be a potential cause of reorganization in operation, the postponement of investments, an increasing asset disposal activity, refinancing with new borrowings or a drop in reserves. In addition to these, the phenomenon called the crowding out effect of debt service may at the same time improve the GFS balance of municipalities.

Keywords: municipality, indebtedness, debt service, deficit-mechanism, crowd-out effect

Introduction

The management of Hungarian municipalities was in the spotlight in 2011 both at the macro and the micro levels. Interest in the issue has started to increase at the end of 2010 when a debt settlement process ended in Szigetvár and shortly after another commenced in Esztergom. These cases were unprecedented in the 15-year history of municipal debt settlement which had been considered so far a "small-town" or village phenomenon. In early 2011 the Central Bank of Hungary notified the government and the public first and later the Ministry for National Economy also confirmed that the ESA deficit target for 2010 was not met principally because the deficit of the municipal sector was higher than expected. In May 2011 the Ministry of Internal Affairs made public its programme for the reform of the municipal sector which provoked intense and dissatisfied responses from both municipal executives and experts of the sector. Since then, the government has outlined several concepts although these are not in any way reflected in the new cardinal Act on Local Governments of Hungary passed by the Parliament on 19th December 2011. The Parliament, however, had already begun the construction of the new municipal system a few months earlier by introducing the Act on the Consolidation of County Governments. Meanwhile, the feedback of the international finance press on the new legislative environment escalated the issues of the municipal sector to the sovereign level. A number of expert reports were also published which differed in their estimation of the scope and depth of the financial crisis of municipalities. This paper does not aim to be the next in the line of these studies. Our purpose is rather to present the phases and feedback effects of the municipal deficit mechanism objectively, on the basis of a simple model. By evaluating this model, we will examine the financial management of municipalities from a novel aspect. Finally, we will assess the new legislative environment in the light of the municipal deficit mechanism.

* The closing date of the study is: 16/01/2012

1. The features of the Hungarian municipality system

The budget of the municipalities is part of public finances (Article 111(1) of the new Act on Local Governments of Hungary). Local operation, management and functions were specified until 2011 by the Act on Local Governments, the Act on Public Finances, the Act on Municipal Debt Adjustment, the Act on Credit Institutions and Financial Enterprises[1] and numerous other regulations.[2]

The balance sheet and budget of the municipalities are consolidated into the final account of general government at the end of each year. The municipalities provide public services which are financed – in addition to government grants – from local tax and fee revenue. The effectiveness of this financing structure is examined in detail by Vigvári (2002 and 2011). Let us note here only that the proportion of municipal own income and central transfers (block grants and transfers from the general government) defines decisively the income flexibility (Vigvári, 2010) and the financial standing of the municipalities. The revenues and expenditures of the general government may be accounted on accrual or cash basis. [3] This study shall refer to the cash basis concept of accounting by default as Hungarian public accounts are prepared – prior to any adjustments made on accrual basis – with this method. This means that deals are accounted when the related cash transfer is made and only items involving cash movements are accounted (P. Kiss, 2011), regardless of which budget period the economic event actually belongs to. The revenue and expenditure structure of municipalities may further be reported in functional or in economic classification. The functional classification groups cash transfers according to the public service provided (e.g. public education), while the economic classification reflects the nature and type of revenues (e.g. own income, such as taxes and fees and central transfers) and expenditures (e.g. material and payroll expenditures and related contributions). For this study, we will consider the economic structure by default. In our analysis we will separate the operating, the investment and the financial budget which reflects external financing activity. In many countries, general government institutions have to manage these budgets separately throughout the budget period (Vigvári, 2011) which prevents them from financing their operating deficit from asset disposal and long-term borrowings [4] (Vigvári, 2007).

The structure of municipal revenues and expenditures, their development and relation may be described by different ratios and balances. A wide range of methods are examined in Vigvári (2002), Galbács (2009) and Simon (2011). We share here only the ratios which are relevant to this study:

- **Total balance:** All revenues and expenditures incurred in a given budget year. The balance indicates the decrease or increase of reserves.
- **Operating balance:** The result of operating revenues and expenditures. In this study we consider own income, block grants and transfers within and outside public as operating revenue, while, according to the economic classification, operating expenditures include material, payroll (with related contributions) and other operating expenditures which are related to compulsory and voluntary public services.[5] It also includes received and paid interests.

[1] See the References section for the full Hungarian title of acts.
[2] E.g. Government Decree No. 249/2000 (XII. 24.)
[3] For further details on these accounting techniques and principles see Simon (2011).
[4] In many countries running an operating deficit in municipal management is forbidden and is punished by law (Vigvári, 2011).
[5] We emphasize that – despite some municipal practices when it is represented as (operating) revenue – the cash residue from prior years is not included in the operating budget because of its distorting effect. Cash reserves are linked to the budget through the total balance.

- **Investment (capital) balance:** The result of capital revenues (revenue from asset disposal, investment grants and other capital revenues) and expenditures (investments). The balance most often shows deficit as the investment expenses of a long-term project are represented with regard to a short period.
- **GFS balance** [6]: The GFS system is based on the registry of budget estimates and their fulfilment. It represents the actual expenditure of the state (municipality) on public goods and the nature of funds financing these activities (Simon, 2011). According to the methodology, capital movements will be removed both from revenues and expenditures, so the balance will not include either capital movements related to the municipality's borrowing activity and nor the cash residue spared or spent, although the income from asset disposal may be represented as GFS revenue. The balance reflects the net financial position of the municipality (or the entire sector), that is, whether it is net borrower/reserve user or net debt payer/cash depositor. The European Union (e.g. the convergence criteria or the excessive deficit procedure) and the International Monetary Fund (IMF) (e.g. precautionary credit line agreements) apply the GFS methodology revised in 2001 to measure compliance with the requirements set for the deficit of sovereign (and municipal) debt (Vigvári, 2002). The GFSM2001 uses the accrual method [7] while the reporting system laid down by the Act on the State Budget is based on the GFS86, developed by the IMF in 1986. Therefore, the Hungarian Central Statistical Office reports the GFSM2001 balance, which is accrual-based, by adjusting the official accounts prepared on cash basis. [8]
- **Financing balance**: The balance shows the net movement of the financing activity. Borrowings are represented as income, while debt service (only capital) is considered as expense. [9] A surplus means increasing indebtedness, while a deficit means net debt service activity (decreasing debts). The GFS methodology does not take into account these items in its calculations. The balance is generally in surplus as borrowings are accounted in one sum while the related debt service extends to further periods.

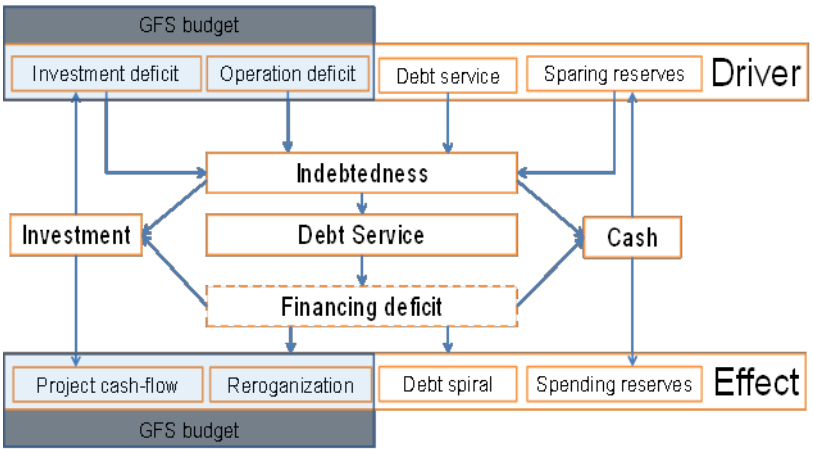
2. The deficit mechanism in municipal financial management

We separate three plus one budget in the financial management of municipalities which make up a closed financing system. [10] These are the following: the (1) operating, (2) investment (capital), (3) financing budgets and (+1) reserves. By a closed financing system we mean that the non-zero balance or change of a budget will result in the non-zero balance or change of at least another budget. In our analysis we assume a typical situation, namely, that there is a deficit in one of the budgets (Figure 1). The deficit might be generated by the operating or the investment (together the GFS) budget, by the financing budget (net debt service), or by a latent lack of reserves. [11] If the deficit cannot be financed either from the surplus of the operating or the investment budget, or from reserves, [12] a need arises for

[6] Government Financial Statistics. See details about the development of and modifications to the methodology of the GFS statistics in Győrffy et al. (2009).
[7] "This methodology agrees in concept with the ESA and with the developed European GFS." (Győrffy et al. 2009, pp. 524.)
[8] For further details see KSH (2011).
[9] Transfers related to financial investments (the purchasing and selling of state bonds) are also represented here.
[10] In spite of a wide international experience and literature, in Hungary the cash flow of the budgets is not separated in practice, only in municipal reports.
[11] As we will conclude later in this study, resolving the lack of reserves by borrowing was a typical motive behind the municipal bond issuances of 2007 and 2008.
[12] In this case net debt service (financing deficit) will turn into net borrowing (financing surplus).

a surplus in the financial budget (net borrowing) which results in increasing indebtedness. Increasing indebtedness, in turn, results in increasing debt service. Debt service may be financed primarily from the cash flows of the financed project (Musgrave,1959; Kovács,2007; Vasvári,2009), nevertheless this principle is rarely put into practice in Hungary. Therefore, the debt service of Hungarian municipalities can be financed from decreasing reserves (total deficit), from financing income which translates into increasing indebtedness (debt spiral), or by the adjustment of the operating or the investment (together the GFS) budget. The latter can mean either the increase of operating or capital revenues [13] or the reduction of expenditures (crowding out effect[14]). If the deficit is financed from a GFS surplus (net debt service) the GFS balance improves.

Figure 1: The deficit mechanism in municipal financial management



Source: Author's elaboration

As the financing system is closed, it is always in balance. Therefore, if the possibility of adjusting revenues and expenditures is exhausted (e.g. there are no further borrowing or cost-cutting possibilities) an immediate adjustment takes place in expenditures by not paying the liabilities when due. This leads to latent bankruptcy (Vigvári, 2010) or an explicit debt settlement process: both resulting in direct or indirect reorganization.

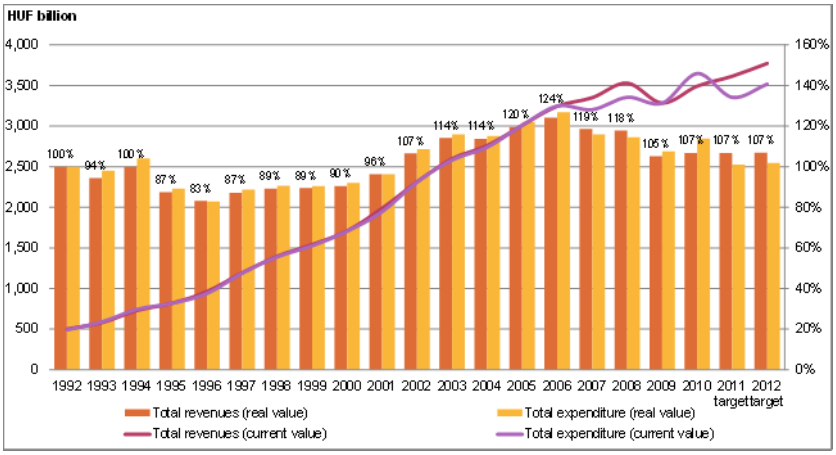
3. The financial management of the Hungarian municipalities with respect to the deficit mechanism

Prior to analysing the different budgets of municipalities we have to place the entire municipal financial system into the framework of Hungarian public finances.

The central government and the municipalities constitute the main subsystems of public finances. The total budget of the municipality sector was HUF 3,648 billion in 2010 which represents 26% of the total state expenditure of HUF 14,058 billion.

[13] Consider only revenue items which the municipality can actually influence by way of law (e.g. tax income and proceeds from disposals). This capacity is described by income flexibility (Vigvári, 2010).
[14] We do not use the term crowding out effect in this study in its traditional definition related to the market presence of the state. By the primary crowding out effect we mean reorganization in the municipal budgets which is the result of the increased debt service.

Figure 2: Revenues and expenditures in the municipal sector at current and real value 1992-2012[15]



Source: Author's calculations and elaboration based on the data of the Hungarian State Treasury and the Central Bank of Hungary

As it is presented by Figure 2 – the income shock caused by the bond issuances in 2007 and 2008 not considered − real expenditure had been increasing more intensively than revenues. A structural turnaround was observable in trends since 2006: a drop in real revenues was brought about – in addition to peaking inflation in 2007 and 2008 – by the slowing increase of block grants and other central transfers, and expenditures were adjusted accordingly. In the following years, municipalities anticipated decreasing central transfers, therefore, they started to increase their reserves (mostly through borrowing) which resulted in a huge total surplus in 2007 and 2008. On the other hand, a total deficit of HUF 155 billion had to be financed from these reserves in 2010 which was necessitated by the expiry of the grace period of municipal bonds (issued mostly in 2007 and 2008) and by tighter lending conditions on the municipal credit market, while the impact of seasonal expenditure characteristic to political cycles was also significant.

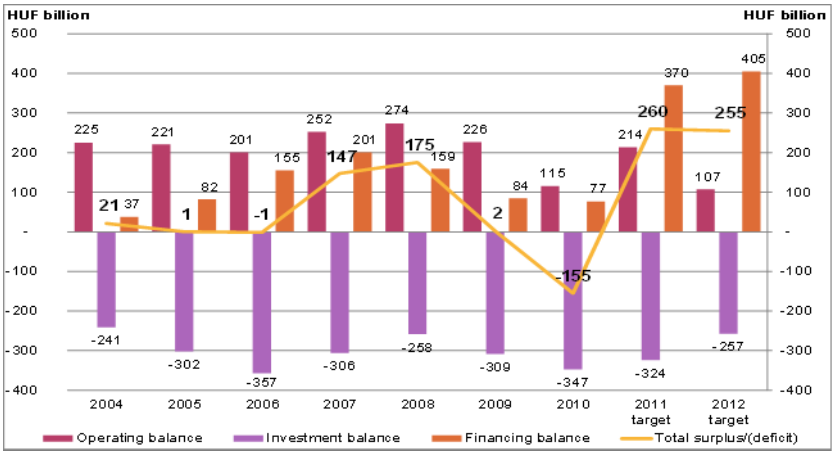
The total deficit/surplus may be divided into the balance of the operating, investment (capital) and financing budget (Figure 3). When applying this methodology we rely on the economic classification we introduced in *Chapter 1*, starting on page 2.[16] We used the data of the Hungarian State Treasury until 2010, and the budget bills for 2011 and 2012. Where it is applicable, we present the trends of the previous 20 years in municipal management, however, in some cases we have to focus on a narrower period in order to present the results in detail. In these cases we focus on the period between 2004 and 2012 as the increasing indebtedness of the sector started in 2004, when the previously steady and balanced increase of cash deposits and liabilities split.

We can state in general that surplus is typical in the operating and financing balance, while it is the massive deficit in the investment balance which is responsible for the total balance going into the red (as in 2010).

[15] In this study we defined real values on the basis of inflation, however, Galbács et al. (2010) introduced the concept of the "municipal deflator" (price index) which provides for a better estimation of the development of real expenditure in the municipal sector.

[16] Note that the economic classification proposed by the Hungarian State Treasury (Form 80) corresponds to the classification we use in this study.

Figure 3: The balance of municipal budgets and the total surplus/deficit 2004-2012



Source: Author's calculations and elaboration based on Budget Bill No. T/1498 and T/4365 and the data of the Hungarian State Treasury

3.1. The balance of the operating budget

Municipalities finance compulsory and voluntary public services from their own income, block grants and transfers coming from within and from outside public finances. Compulsory public services are defined by the Act on Local Governments[17] and by numerous sectoral acts. The balance of the operating budget shows a surplus since the political transition in Hungary in 1990.

However, two additional items, which are excluded from the operating budget in Form 80 of the Hungarian State Treasury, need to be considered in the operating budget as expenditure. Vigvári (2002) proposes an alternative regulation to control indebtedness according to which municipalities may borrow new loans only if their *financial capacity* provides an adequate safeguard that the annual debt service of these loans will be paid. To calculate this, current debt service is subtracted from the operating balance which provides an estimate of the puffer that can be utilized to finance further obligations (such as debt service) without the need for any major reorganization. Debt service is defined as financial expenditure by the Hungarian State Treasury, however, it is rarely refinanced from financial revenue in municipal management.

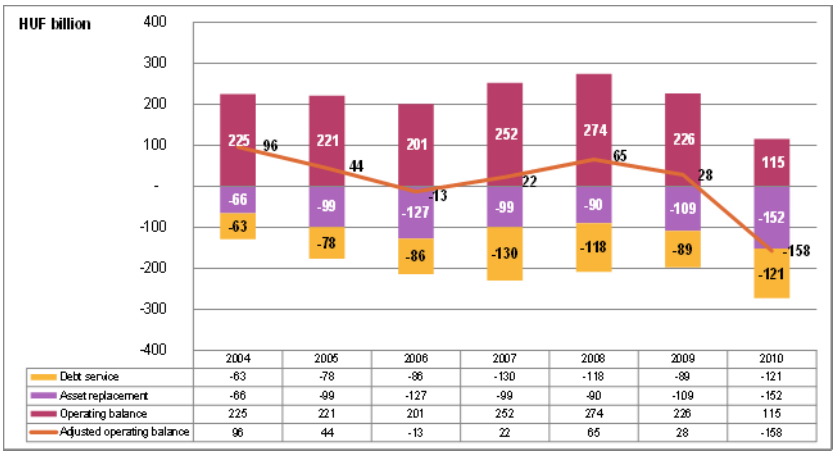
The concept of *financial capacity* need to be extended with expenditure on the renovation of real estates and other assets, which represents a need for asset replacement as a consequence of depreciation. In cash basis accounting depreciation does not appear as a financing need (as it is not considered as regular expenditure [18]). This fact is a source of increasing tension since the rebirth of the municipal subsystem in 1990 when the municipalities acquired significant assets free of charge but the related asset replacement and maintenance functions were transferred, too, to the municipalities' scope of authority, without any direct central transfer provided to them. Therefore, funds have to be raised for these expenses by each municipality individually. [19] Asset replacement is defined as investment

[17] The Act on Local Governments of Hungary is effective from 2012.
[18] It is accounted only in the balance sheet (against equity) and is not represented in the income statement (budget balance). Net (exclusive of VAT) asset replacement expenditures were far below the accounted depreciation between 2004 and 2010. The accumulated difference is HUF 631.8 billion, 62.1% of which results from the depreciation of properties.
[19] We should note that the financing of asset replacement and renovation is also a typical driver of borrowing.

expenditure by the Hungarian State Treasury, however, in most cases it is not financed from capital revenue – except for investment grants provided by the EU for this particular purpose.[20]

The operating balance adjusted by annual debt service and asset replacement informs the distressed financial situation of municipalities much better: the adjusted balance shows a deficit of HUF 158 billion in 2010 (Figure 4). Further effects and feedback on the financing of debt service from the operating budget will be provided later in this study. Here, let us note only that the lack of funds in the financing of municipalities' daily operation is a reality; its impact in 2010 was more significant than ever. The development of the adjusted operating balance is in line with the total deficit which indicates a dramatic decrease in reserves in 2010 (HUF 155 billion).

Figure 4: The operating balance adjusted by annual debt service and asset replacement 2004-2010



	2004	2005	2006	2007	2008	2009	2010
Debt service	-63	-78	-86	-130	-118	-89	-121
Asset replacement	-66	-99	-127	-99	-90	-109	-152
Operating balance	225	221	201	252	274	226	115
Adjusted operating balance	96	44	-13	22	65	28	-158

Source: Author's calculations and elaboration based on the data of the Hungarian State Treasury

3.2. The balance of the investment (capital) budget

The registry of investment (capital) revenues and expenditures accounted on cash basis involves certain distortions in the reporting of Hungarian municipalities. These are the following:

- Depreciation is accounted only in the balance sheet, as a direct equity-decreasing item (see above).
- Capital expenditures are accounted in one sum, concentrated to one or a few periods (pay-as-you-go) while the utilization and the useful lifetime of the project exceeds the investment period (Vigvári, 2002).
- Financial expenditures (debt service) ensure that investment expenditures will be shared between the years/generations equally. Figure 3 illustrates clearly that the investment budget shows a deficit throughout the examined period. The deficit is financed from the operating surplus, financial incomes and reserves. The annual debt service of loans, borrowed to finance investments, distributes the capital expenditures of a period between the useful years and the benefiting generations evenly (pay-as-you-use).

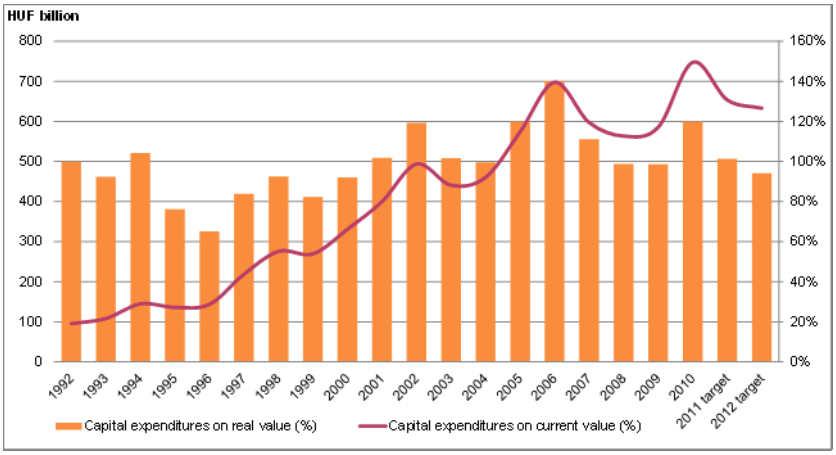
Musgrave's (1959) *golden rule* is based upon the above principles, namely, that long-term borrowings should finance only capital expenditures. The *golden rule* and the distribution of capital expenditures over the useful lifetime has two consequences: on the one hand, the lack of timely matching may result that current operating expenditures burden future years/generations or that the financing of projects

[20] Musgrave (1959) also represents amortization as current expenditure.

with a long useful lifetime may unfairly burden the current year/generation. On the other hand, the financed project may generate net income for the municipality during its lifetime and this may ease the burden the annual debt service imposes on the municipality. Therefore, it is advisable to distribute investment costs throughout the useful lifetime of the project (Figure 1).

The investment intensity of Hungarian municipalities – contrary to public opinion – was balanced and steady in the previous 20 years. Compared to 1992, capital expenditure at current value grew to 782%, and increased only to 120% at real value in 2010. Moreover, these expenditures were only at the 1992 level in 2008 and 2009. Shocks caused by the political cycles in current and real investments are clearly traceable on Figure 5.

Figure 5: Current and real investment (capital) expenditures 1992-2012



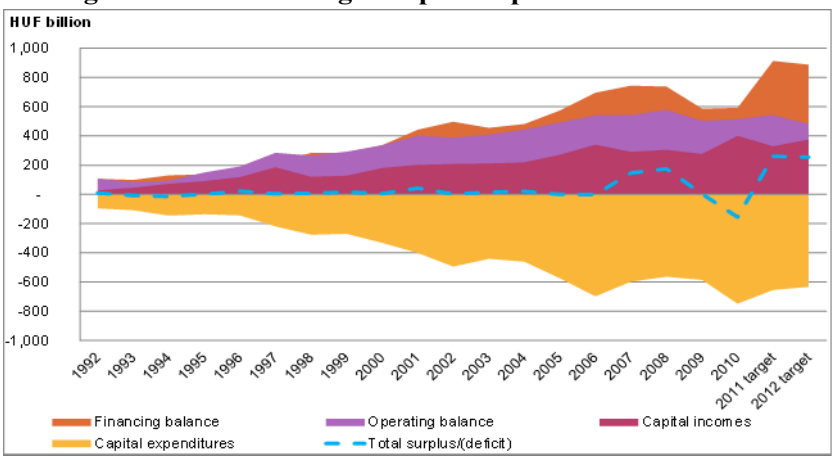
Source: Author's calculations and elaboration based on the data of the Hungarian State Treasury and the Central Bank of Hungary

Figure 6 shows how the financing structure of investments changed in the last 20 years. The proportion of capital revenues was steady except for a period of dynamic increase between 1991 and 1997 when it was between 40% and 50%. Capital revenues reached a local peak in 2010 (67.6%) while the proportion of the financial and operating surplus dropped. In the early 2000s capital revenues were comprised mostly of proceeds from asset disposal (their proportion was 40.3% in 2001 and dropped to 16.2% in 2010). These proceeds are unrestricted use resources, unlike EU and state capital funds.[21]

We can conclude that municipalities need considerable financial resources to fund their investments: approx. 50% of capital expenditures need external – off-budget – finance. The net income generating ability of financed projects is uncertain, usually the maintenance and daily operation of projects demand additional funds from the municipality rather than generating profit to cover future debt service obligations.

[21] See Vigvári (2007) for further details on the asset disposal activity of municipalities.

Figure 6: The financing of capital expenditures 1992-2012

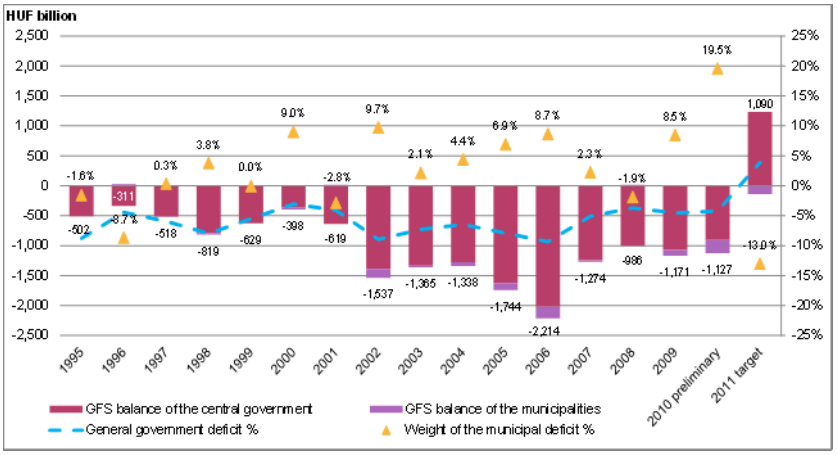


Source: Author's calculations and elaboration based on Budget Bill No. T/1498 and T/4365 and the data of the Hungarian State Treasury

3.3. The balance of the GFS budget

The balance of the GFS budget is one of the most significant indicators in the financial management of the general government. This balance does not take into account borrowings and other financial transactions on the capital market, however, proceeds from the disposal of assets as one-off, free to use items are included in the balance. The GFS balance is the result of operating and investment revenues and expenditures.

Figure 7: The composition and development of the "European" GFS balance of the general government 1995-2011



Source: Author's calculations and elaboration based on the data of the Hungarian Central Statistical Office

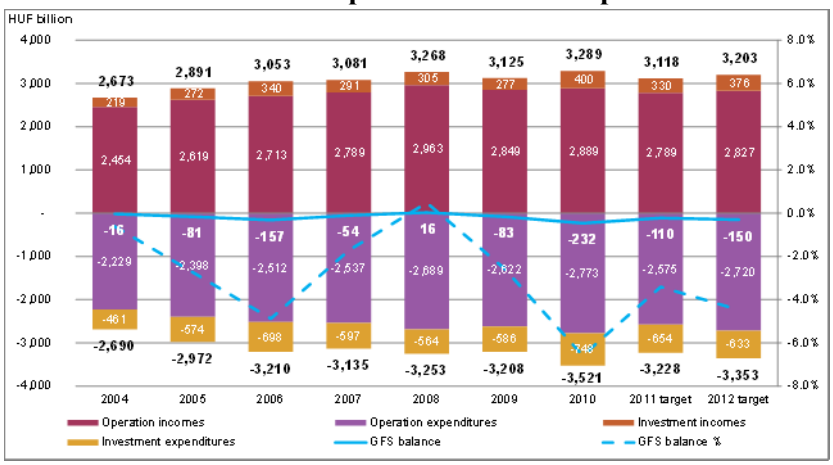
The GFS balance of the municipalities, which is prepared on cash basis, is consolidated into the general government balance. This balance (which mostly shows deficit) is the anchor of the central government's fiscal policy. The requirements of the Maastricht Treaty concern the general government balance adjusted to accrual basis (the "European" GFS), and the government, too, assumed an obligation towards the European Union and investors to fulfil these requirements on accrual basis.

The proportion of municipal deficit in the consolidated general government deficit has been steadily growing since 2008 and it peaked at 20% in 2010 (Figure 7). In the same year, the government's municipal deficit target was HUF 180.7 billion but was exceeded, with HUF 220.2 billion according to

final figures. This excessive deficit, added to the "unexpected" spending of the central government (in total HUF 74.7 billion) moved the budget deficit significantly away from the original target (4.2% instead of 3.8%).

The unexpected growth of the "European" GFS balance is reflected also in the GFS balance prepared on cash basis (Figure 8). 27.5% of the HUF 232 billion municipal GFS deficit could be attributed to the budgets of cities with county rights (HUF 63.8 billion), as Budapest and the capital districts were responsible for "only" 22.3% [22] of the deficit. The proportion of the external and internal sources used to finance this deficit is 33-67%, which is shown in Figure 3 in the financing and total balance.

Figure 9: The calculation and development of the municipal GFS balance 2004-2012



Source: Author's calculations and elaboration based on Budget Bill No. T/1498 and T/4365 and the data of the Hungarian State Treasury

The GFS balance also indicates how great is the financing need of the operating and the investment budget of municipalities. The composition and examination of the balance shows clearly the nature and structural properties of the financing need of the sector. This need may be satisfied from reserves, from borrowings, or from both.

3.4. The development of reserves

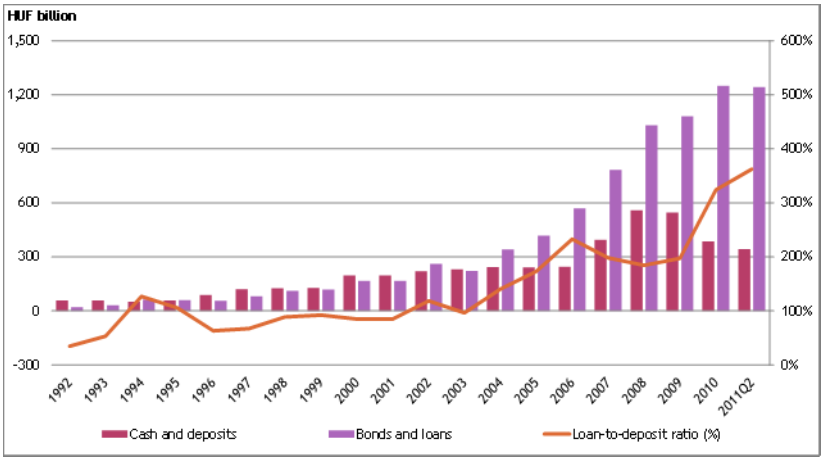
Reserves in the municipality budgets are labelled according to their origin, namely, they can be budgetary or business reserves. Reserves accumulated from municipal bond issuances are considered as special budgetary reserves. These assets are mostly invested in demand and time deposits or state bonds. Figure 10 illustrates the development of the balance of cash and deposits, together with bank liabilities.

The balance of cash and deposits had been increasing steadily and consistently with the balance of liabilities until the end of 2003. Since 2004, the year of Hungary's accession to the European Union, the growth of liabilities has been exceeding the growth of cash and deposits, which might be the result of the (pre) financing of EU-funded investments. The accumulation of reserves became the driving force of municipal credit demand in 2007 and 2008: municipal cash and deposits were increasing significantly as a result of the popularity of municipal bond issuances which, in turn, were driven by the reserving motive. The reasons behind reserving were the following:

[22] The complete division of the 2010 municipal GFS86 balance: cities with county rights − HUF 63.8 billion, towns − HUF 58.9 billion, counties − HUF 31.5 billion, Budapest − HUF 26.3 billion, villages − HUF 25.9 billion, capital districts − HUF 25.5 billion.

- The central government made steps to strengthen the control over municipal borrowings in 2007[23] which in the end did not come into force (owing to the lack of 2/3 supporting majority in the Parliament) (Vasvári, 2009).
- The settlement and drawdown of market and refinanced loans is complicated, unlike bonds, the proceeds of which are free-to-use (Gál, 2010). Loan instruments are not suitable for reserving purposes as many of the lending conditions are fixed and specific (e.g. commitment period).
- Bond issuances are not subject to the Act on Public Procurement.

Figure 10: The municipal loan-to-deposit ratio and its composition 1992-2011Q2



Source: Author's calculations and elaboration based on the data of the Central Bank of Hungary

The increasing, mostly reserve-driven credit demand also met an increasing credit supply − with looser conditions as banks had to pay a low margin on interbank foreign exchange funds. [24] The municipalities deposited the external funds they acquired mostly from foreign currency denominated bond issuances into HUF accounts, exchanged. This meant a favourable carry trade [25] position for the municipalities while the banks could collect HUF funds at a discount price. The exchange rate risk implied in the conversion rested upon the municipalities. The expansion of the municipal credit market might also be driven by oligopoly competition: based on credit value, seven financial institutions dominate 97% of the municipal financing market (MNB, 2011). The rating of municipalities was also enhanced by faith in the operational continuity of municipalities, which means that a municipality cannot be terminated without a successor and their income cannot be fully depleted (Homolya-Szigel, 2008). Due to these facts and to certain information asymmetries characteristic of the sector, the margins payable above the reference rates of municipal loans and bonds cannot be considered reliable risk indicators. Gál (2010) states that the rating and risk of municipalities is reflected primarily by the non-interest conditions of credit instruments (maturity, collateral, credit line, additional commitments).

The revaluation effect of foreign exchange liabilities and the drop in reserves caused increasing deterioration in the net financial assets of the municipalities which is also represented by a 362% loan-to-deposit ratio in 2010.[26]

[23] Bill No. T/4320 on the amendment of Act LXV of 1990 on Local Governments, 9 November 2007
[24] See further details in Páles-Homolya (2011).
[25] See further details in Vasvári (2009).
[26] Based on the System of National Accounts prepared by the Central Bank of Hungary (S.1313).

3.5. The role of debt service

The impact and feedback effects of debt service will be examined in detail later in this study. We note here only that refinancing principal payments (debt service [27]) from financial revenue (borrowing) is common practice in the public sector. This does not trigger an increase in indebtedness as revenue and expenditure are netted within the financial budget, only the total budget is grossed up. However, the financing of current expenditures (such as interest and other bank fees) from financial revenues increases indebtedness. In addition, underlying credit that refinances debt service involves a *secondary* crowding out effect as well: as the municipality is not able to decrease its indebtedness it will be unable to get new funds to finance its ongoing investments.

4. The indebtedness of municipalities

Municipal debt forms part of the consolidated general government debt. In spite of this, the state does not stand surety for municipal liabilities directly and there is only a passive control on debt service defined by law [28] in order to limit the indebtedness of municipalities until 2011. Kovács (2007), Homolya-Szigel (2008), Aczél-Homolya (2011) and Vasvári (2009) conclude that this regulation does not constitute an effective limit on municipal borrowing. The consequences are the following:

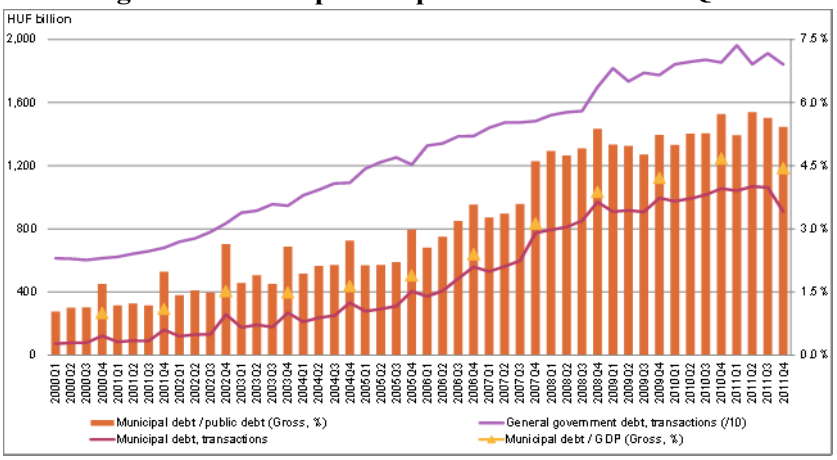
- There is no state bail-out in cases of municipal insolvency, although, with the recent turbulent market conditions in view, any possible debt settlement process may increase the sovereign risk of Hungary (Aczél-Homolya, 2011). The consequences of previous debt settlement processes is analysed in detail by Jókay and Veres-Bocskay (2009), Gál (2010) and Aczél-Homolya (2011).
- As the borrowing limit was not effective, the indebtedness of municipalities may increase only through the control of financial institutions. The municipal debts are consolidated into the public debt. Figure 11 shows that the development of municipal debt (with the exchange rate effect excluded) is similar to the trend that the development of public debt follows, however, on a significantly smaller scale.

Public debt – in addition to the budget deficit – is one of the few significant indicators that investors seriously take into account. [29] Therefore, it is also regarded as a fiscal anchor in the economic policy of the government and is included among the Maastricht criteria as well. The statutory borrowing limit we have cited above maximizes debt service per municipality, however, it does not contain any restrictions with regard to breach of the regulation. Although the calculus of the limit was adopted by the banks with certain adjustments (Vasvári, 2009), earlier (until 2009) it was not in their interest to enforce restrictions on the municipalities. Higher interest rates (margins), tighter lending conditions or a credit-stop would have entailed a drop in their market share and defeat in the credit competition.

Municipal debt compared to public debt was only 1% in 2010 but increased to 6% by the end of the first half of 2011. The public debt/ to GDP ratio grew from 59.4% to 82.5% in this period, while the contribution of municipal debt to the total debt ratio rose from 1% to 4.7%.

[27] For the purposes of this study and unless otherwise indicated debt service is equivalent to principal payments. Interest and other fee obligations are considered as operating expenditures.
[28] See the Act on Local Governments
[29] This statement is even more actual in the recent debt-crisis sweeping through Europe and the US.

Figure 11: Municipal and public debt 2000-2011Q2[30]



Source: Author's calculations and elaboration based on the data of the Central Bank of Hungary

The most typical instruments of municipal borrowing are long-term loans and municipal bonds. Their share in financing was almost equal, 52%-48% at current value, at the end of the first half of 2011. The majority of bank liabilities were denominated in foreign currency and their share in the same period was 61.7%. The revaluation of these debts may have the following consequences:

- Higher exchange rates increase the debt service of loans/bonds, which boosts the crowding out effect of debt service as well. Potential feedback effects include the improvement of the GFS balance (reorganization motive), the deterioration of the total balance (the spending of reserves) or the increase/maintenance of the level of indebtedness (restructuring motive). The profitability of financed projects may also be required to increase.
- Revaluations are non-realized gains/losses. The accounting of revenues/expenses from revaluation happens only through interest or principal payments (or prepayment).
- Revaluations are consolidated into the public debt. The virtual municipal debt increase issuing from revaluation was HUF 174.4 billion [31] at the end of the first half of 2011, only 0.8% of total public debt.
- Revaluations – like depreciation – are accounted on cash basis and appear only in the balance sheet, between equity and liabilities.

We can conclude that the debt of municipalities is not significant relative to consolidated public debt. Therefore, municipal indebtedness in itself does not cause structural concerns. However, the amortization (debt service) of municipal indebtedness needs careful attention as it can affect the economic policy, management and performance of both municipalities and the central government.

4.1. Motivating factors behind municipal indebtedness

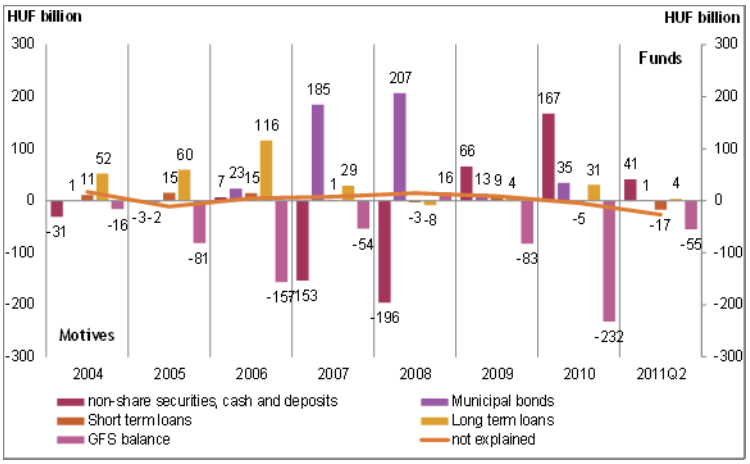
Previously we have introduced the possible theoretical motives of increasing municipal indebtedness. In this short chapter, we will quantify and weigh the different motives that have been stimulating municipal borrowing since 2004 (Figure 12).

Funded projects must be specified in loan agreements or in bond documents (including the information memorandum). This may limit the drawdown of loan funds significantly, while the debiting of funds

[30] In order to provide a better illustration Figure 11 displays only one tenth of the total public debt.
[31] Constituting 14% of total municipal debt at the end of the first half of 2011.

from bond issuances may be less restricted. [32] In spite of this, municipalities generally aim to define viable long-term projects when issuing bonds.

Figure 12: Funds according to purpose in municipal management 2004-2011Q2[33]



Source: Author's calculations and elaboration based on Budget Bill No. T/1498 and the data of the Hungarian State Treasury and the Central Bank of Hungary

Borrowings were used to finance the GFS deficit from 2004 to 2006, however, the intention behind the "boom" of municipal bond issuances in 2007 was mostly to accumulate reserves and state bonds, while only HUF 25 billion was spent on counterbalancing the GFS deficit. The refinancing of loans was not a significant motive. Reserves continued to increase in 2008, driven by the sustained bond "boom" and by the surplus of the GFS budget. A slight decrease was perceptible in long-term loans, which was probably the result of ordinary debt service or refinancing. As the municipal credit market was frozen and there was a lack of any other options, in 2009 municipalities financed their GFS deficit mostly from reserves. Although the municipal credit market "melted" in the following (election) year (with HUF 66 billion of new borrowings), the largest part of the peaking GFS deficit was financed from reserves. This trend continued in 2011.

We can conclude, then, that the refinancing of debt is not a typical practice in the municipal sector. HUF 662 billion in funds was spent on GFS deficit from 2004 to 2011Q2, the biggest share of which was used to finance municipal investment activity, including own contribution to EU tenders. Meanwhile, in 2007 and 2008 municipal bond issuances were driven by the desire to accumulate reserves, however, there were only HUF 71 billion left of the reserved HUF 349 billion by the end of the first half of 2011. This drop in reserves was brought forth by newly launched projects and the lack of credit funds in 2009 and 2010. The extra funds from bond issuances covered structural deficiencies which were revealed when cash started to shrink from 2009, 3-4 years later than due owing to the grace period of bonds.

Moreover, financing items are not included in the GFS budget, therefore, spending external (borrowing) or internal (reserve) resources to finance GFS expenditures (operating or investment) causes a direct deterioration in the GFS balance.

[32] Except if banks agree with the municipalities about the restriction of fundable items.
[33] For the GFS balance of the first half of 2011 we considered 50% of the planned balance in the Budget Bill for 2011.

5. Debt service

The debt service related to municipal indebtedness poses a significant challenge to the executives of municipalities and also to bank managers. In the following, we will review experiences and anticipations regarding municipal debt service and evaluate the crowding out effect the deficit mechanism gives rise to.

The repayment of short-term loans lagged behind the repayment of short-term borrowings in 2010 (HUF 57 billion compared to HUF 111 billion) that resulted in a peak in the increase of short-term liabilities at HUF 54 billion, treble the previous record of HUF 18 billion in 2006. In particular, overdraft loans amounted to HUF 116 billion in the middle of 2011 (Aczél-Homolya, 2011), so the liquid loan financing of municipalities, in which the municipalities "got stuck" as a result of the unfavourable financing structure of their daily operation in the previous years, is significant.

The debt service of long-term loans has been steady since 2004 (HUF 51 billion in 2010); the weighted average of their maturity since 2004 is calculated at 8.4 years. Compared to municipal bonds the maturity of loans is 10 years shorter. As the Successful Hungary Municipal Infrastructure Development Loan Programme launched by the Hungarian Development Bank in the past few years includes a grace period for principal payments, too, the estimation may be distorted.

The debt service related to municipal bonds was the lowest in 2010 (HUF 14 billion), but on the increase. This can be traced back to the grace period on principal payments, however, the amortization of loans in certain cases includes increasing, "progressive" principal payments over the maturity period.

Now we will estimate the future municipal debt service of each credit instrument, respectively, with the level of short-term loans considered unchanged (as short-term loans are repaid and borrowed in each fiscal year).

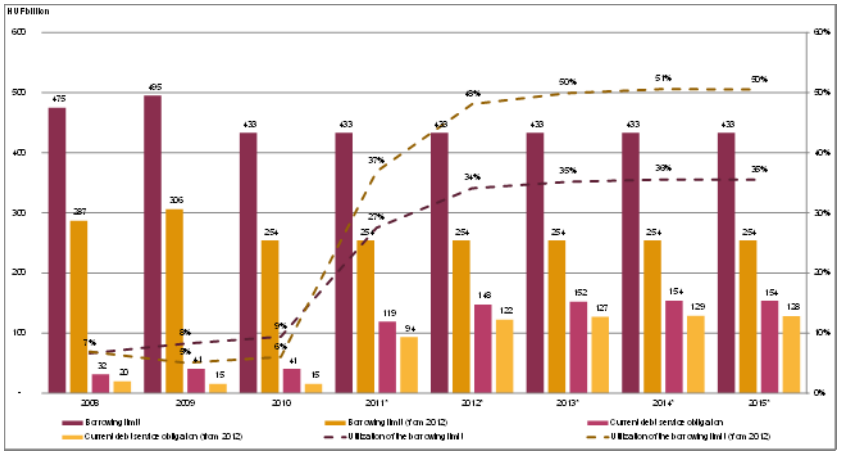
To estimate the debt service of municipal bonds we used the collected data of a previous study (Vasvári, 2009). The estimation of expected reference rates and exchange rates are carried out along three different scenarios.[34] The calculation shows that the debt service of municipal bonds will peak in 2014−2015 at HUF 55 billion (Figure 13). This represents a significant increase compared to the estimated (HUF 11 billion) debt service in 2010.

With the debt service of long-term loans[35] added to our calculations, the burden debt service imposes on the municipal sector may be over HUF 100 billion in 2015. There is a significant drop in debt service observable in 2027 and 2028 as the majority of municipal bonds issued in 2007-2008 have an initial maturity period of 20 years.

While regulations are weak growing debt service has a significant effect on the management of municipalities, as hundreds of billions of forints have to be repaid as debt service in the following years. This demand – given the closed financing system of municipalities − can be satisfied only from four different sources: the (1) operating, (2) investment (capital) and (3) financing budgets or from (4) reserves.

[34] Estimation conditions and the macro variables assigned to each scenario are included in the appendix.
[35] We assumed a maturity period of 10 years for existing debts as of the end of 2010, without any new long-term borrowings. The possible grace period of loans is ignored.

Figure 14: Meeting the municipal borrowing criteria as defined until 2011 and from 2012, 2004-2015[36]



Source: Author's calculations and elaboration based on the data of the Hungarian State Treasury, the Act on Municipalities and Government Decree No. 353/2011 (XII. 30)

Nevertheless, the revenue arising from financed projects may be used as the primary source to fund debt service, lessening this way the burden on the ordinary cash flow of municipal budgets. Most municipal-financed projects, however, do not generate net revenue, therefore, financing debt service from project revenues – as we have mentioned earlier – is not typical in Hungary.

There are two possible ways to finance debt service from investment revenues: either from proceeds from asset disposal or from investment subsidies granted by the state or the EU. Both can be used to finance asset replacement, i.e. debt service related to long-term project loans or bonds. However, if the debt service is related to bonds or loans that served the purpose of financing operating activities (deficit), it is considered as the "consuming" of assets, and thus, breach of the *golden rule*.

Increasing debt service may also result in the adjustment of investment expenditures, however, these obligations are in the most cases contractually fixed. Moreover, the proportion of non-refundable subsidies in EU funded projects is high, therefore, municipalities rarely postpone or cancel their projects in the short run because of an increase in debt service. If investment plans are considered in the long run, municipalities may cancel projects in order to have sufficient funds to cover debt service. In this case, the crowding out effect of increased debt service appears only in the long run.

The refinancing of debt service or prepayment from financial revenue (new borrowings) is called the debt spiral. Liquid loans, which are borrowed and repaid within a year, constitute an exception as these items gross the total budget but do not bring forth the deterioration of the balance. However, a *secondary* crowding out effect is also involved: as the municipality cannot decrease its indebtedness it will be unable to get new funds to finance its on-going investments. It also indicates a serious problem if municipalities spend further borrowings on the current interest and bank fee obligations of existing loans, which again increases their indebtedness.

Our conclusion is that municipalities should accumulate funds in their operating budget in order to finance debt service. This has a twofold effect on their daily operation. On the one hand, municipalities may increase their controllable revenue [37] which translates into an increase in the rates

[36] Based on estimated debt service for the period starting from 2011. The rest of the variables are fixed at the 2010 value.

[37] The need for a "painful" increase in controllable revenues may be decreased by extraordinary and operation deficit (ÖNHIKI) grants received from the central government.

and bases of taxes, or a review of tax discounts. The collection policy of municipal (tax-)receivables may also be tightened. On the other hand, the increased debt service may compel municipalities to decrease expenditures, which would require a complex and comprehensive reorganization. Municipalities may initiate measures to meet the criteria of the 3Es [38] (efficiency, effectiveness, economy) (Vigvári, 2005) or suspend the provision of voluntary public services.

If there is a lack of necessary funds in the operating and investment balance to cover debt service debt has to be financed from reserves, which will appear in the total deficit of municipalities. Financing debt service from reserves does not influence the net financial assets [39] of municipalities negatively, however, the payment of additional interests and fees from reserves accelerates the depletion of financial assets.

Reorganization, adjustments in the investment budget (e.g. postponing investments) or the depletion of reserves are direct results of the **crowding out** effect caused by (increasing) debt service: an increase in financial expenditures can be financed only through the adjustment of either revenues or other expenditures. If this does not succeed expenditures will be adjusted to revenues as the closed financing system stays always in balance. In practice this means that liabilities become overdue and payments may even be suspended (note that according to the cash method there is no accounting in this case), which leads to latent bankruptcy (Vigvári, 2010). In this case, committed liabilities cannot be financed from revenues and reserves (insolvency, weak financial standing) and at the end of the process the municipality goes "bankrupt" and the municipal debt settlement process begins.[40]

Financing debt service from the operating or the investment budget results in the recovery of the GFS balance as financial expenditures are below-the-line items in the GFS budget. Thus, increasing debt service entails a favourable structural feedback on the consolidated GFS balance of the general government.

Conclusions considering the new municipal framework

Figure 15 summarises briefly the conclusions of this study, that is, how the inter-budget financing of deficit affects municipal management.

While we discuss our conclusions regarding the effects of the deficit mechanism on the management of municipalities we will also touch upon and evaluate the relevant paragraphs of the acts recently introduced to reform municipal management.

Municipalities can take only insufficient measures (from an economic point of view) to finance their operating deficit which is indicative of structural issues. The Act on Economic Stability of Hungary restricts the temporary and prohibits the year-end financing of operating deficit from borrowings. According to the Act on Local Governments of Hungary, a new (service-based) financing system will be introduced from 2013, which is planned to eliminate deficit arising from the delivery of public services on the required level. [41] The consequence of this new system is, on the one hand, that municipalities may finance operation only from liquid loans (redeemable within a year) from 2012.

[38] E.g. more efficient cash management, centralized procurement, the review and tightening of cost management and procurement processes.
[39] See details on the net financial assets in Vigvári (2010).
[40] To avoid or ease these burdens municipalities often initiate re-negotiation, review or restructuring of contracted liabilities, e.g. loan restructuring, payment discounts or instalment payment.
[41] A deficit cannot be planned from that year on either.

Therefore, municipalities have to get rid of their existing liquid debts they got "stuck in" in recent years (HUF 116 billion in 2010). The total repayment of these liquid loans would result in a significant crowding out effect, however, it is more likely that these loans (mostly overdrafts) will be converted to term loans with a definite maturity and the full amount will be prepaid in fixed instalments, which will distribute the crowding out effect evenly. Moreover, as the financing of year-end operating deficit from borrowings is prohibited from 2012 (one year before the introduction of the new financing system) the intensity of the crowding out effect will increase further. At the same time, the law (in force from 2013) allows the operating deficit to be financed from other budgets, such as investment revenues and reserves. Therefore, the phenomenon of the operating deficit itself will not be resolved, only its inter-budget financing limited. It must also be noted that unforeseen increases in debt service (i.e. due to the exchange rate and reference rate risk) intensify the reorganization and crowding out effect, which remains a problem even if debt service is declared as compulsory public service. Either with or without the declaration it is still uncertain what funds the municipalities will rely on to finance debt service from 2013.

Figure 15: Inter-budget financing and its effect on municipal management

	Operation budget	Investment (capital) budget	Financing budget	Reserves
Operation deficit	(reorganization)	"consuming" assets postpone projects	indebtedness	spending reserves
Investment (capital) deficit	postpone projects	(asset replacement)	indebtedness, distributing expenses between the generations	spending reserves*
Financing deficit (Debt service)	crowding out effect	Project prefinancing "consuming" assets crowding out effect	(restructuring, refinancing)	spending reserves**
Accumulating reserves	✓	"consuming" assets*	indebtedness carry trade	n/a

* If a reserve from proceeds from asset disposal is spent on investment deficit, it is considered as - delayed - asset replacement

** Acceptable, if the financed debt service is not related to operation debts.

Source: Author's elaboration

We can conclude that asset replacement is closely related to the provision of public services at the required level and can cause significant – uncontrolled – GFS deficit if it is not declared as compulsory public service. Therefore, it is advisable to include these expenditures in the new financing system in force from 2013.

Borrowing is a highly applicable means to satisfy the significant financing need of the municipal investment budget, as it realises the pay-as-you-use principle (the distribution of investment expenditure among the benefiting generations) (Vigvári, 2002). This is the only fair and economic option, as financing projects from operation savings would result in the postponing of investments because of insufficient funds. The Act on Economic Stability of Hungary states that municipal borrowing is subject to governmental approval. [42]

[42] The Act establishes the following borrowing purposes as exceptions: prefinancing and own contribution of subsidies, reorganization loans taken out during a debt settlement process, liquid loans, loans under HUF 100 million requested by Budapest and cities with county rights, loans under HUF 10 million requested by other municipalities.

According to the Act, the government approves – exclusively investment-related – municipal borrowings if the project concerned remains within the new borrowing limit (see below), if it does not mean any threat to the target for consolidated public debt set in the current year's budget act, and if sufficient capacity is reserved in the budget for the provision of public services and the payment of additional debt service without default. [43] In spite of these, the government should focus more on the nature of municipal investments rather than on borrowings. The reasons for establishing more active control over capital expenditures are the following:

- This assessment or reviewing function may fit in well with the new role of county municipalities regarding urban and regional development management. It is important that independent or elected institutions should review the initiated project in order to ensure that a neutral decision, representative of the priorities of the voting public is made. This would also accelerate the decision-making process.
- By reviewing projects, investment related funds − including borrowings − could be indirectly approved. As only investment related long-term borrowings are allowed by the law from 2012, further indebtedness could also be kept under control.
- The GFS balance shows the net internal (reserves) or external (borrowing) financing need of a municipality. As financial revenues are not included in the GFS budget, spending borrowings on GFS expenditures, such as investments, would result in the deterioration of the sectoral and the consolidated GFS balance as well. Although the Act on Local Governments declares that municipal borrowings have to comply with the consolidated debt target stated in the budget act each year, we can conclude that − as municipal debts are immaterial in the public debt – the control over the spending of financial revenue is lax. Moreover, the Act does not consider borrowings for own contribution and the pre-financing of subsidies, which enhances the weaknesses of the regulation and lets GFS deficit go out of control.
- Focusing on investments would prevent a draft loan agreement, applied for in a time- and cost-consuming public procurement process, to be refused by the government.
- Focusing on investments would prevent the increase of indebtedness driven by the reserving motive and, consequently, speculation on the money market would also disappear.
- The Act on Local Governments of Hungary stipulates state suretyship for the completion of projects subsidized by the EU (in case municipal insolvency threatens the drawdown of subsidies). Therefore, the government should track and monitor municipal investments throughout the life of the project.
- The focus on investments may also facilitate the launching and execution of a more comprehensive framework for regional and national development that would guide municipal investments, as well. This would be essential as municipalities are responsible for about 50% of state investments (Vigvári, 2011).

Some of these thoughts are reflected by Government Decree No. 353/2011. (XII. 30.), as it prescribes a reporting obligation for municipalities regarding their investments in the pipeline in the current fiscal year (the relevance of investments to compulsory public services must also be stated). In the approval process of each draft loan agreement the purpose of the loan is checked against the submitted investment list – although in special cases this may be ignored. However, this practice means only a weak control over the nature and timing of investments, as it only rejects ad-hoc investments and

[43] The incorporation of this provision in the Act on Economic Stability is very welcome, as Vigvári (2002) also proposes the introduction of the term "financial capacity" into the control of municipal indebtedness. The practical consequence of the crowding out effect is in fact that it establishes the sufficient financial capacity to finance debt service – subsequently.

explicitly reserve-driven borrowings. Moreover, the government is the subject of the decision making and the escalation process over three levels [44] slows the administration considerably. [45]

The debt service of investment related borrowings may be covered primarily from the net project revenue of financed projects, however, there is no net revenue requirement laid down for Hungarian municipality projects, and sometimes they even result in increasing operating expenditures. Investment revenue can finance only investment related debt service that arises either from loans pre-financing EU subsidies or borrowings that finance new assets or asset replacement. All other cases presuppose structural deficiencies.

If the origin of both the reserves and the debt service is an investment activity, reserves can be spent on the debt service without risking structural issues. However, financing debt service from reserves that originate from borrowings may lead to the deterioration or closing of the carry trade position which, in turn, decreases interest gains while the net financial assets of the municipality remain constant.

The Act on Economic Stability of Hungary allows the refinancing of debt service or the prepayment of loans from financial incomes (borrowings). We have to note, however, that the refinancing of loans is currently not timely and is not to be expected, as municipalities got funds with more favourable conditions and a long maturity prior to the economic crisis. Refinancing would also mean the realization of unfavourable exchange rate conditions in the case of foreign currency funds. [46]

As a consequence of the deficit mechanism, the occurrence or growth of debt service – given the lack of any project revenues – results in a drop in reserves, the "consuming" of assets, reorganization, refinancing, or, in the worst case, a debt settlement process. Regarding the transitional year of 2012 the government should consider a reform of reorganization loans, which would allow municipalities to apply for an interest subsidy without being in a state of bankruptcy. This would give municipalities impetus for early reorganization in order to avoid a debt settlement process and would also enable municipalities to refinance their loans at lower – state-subsidized – rates. Moreover, reorganization, the earlier the better, would stop or slow the "consumption" of assets and reserves.

The indebtedness of municipalities and the revaluation risk resulting from high foreign currency exposure is not significant in terms of consolidated public debt; it does not entail serious structural issues. In spite of this, the debt service of municipal debt, where applicable, imposes a great burden on each municipality. The profession has been proposing modification of the methodology with regard to the ineffective borrowing limit for years. As opposed to the short-term, current-year focus defined by the Act on Local Governments, the Act on Economic Stability of Hungary sets requirements for debt service throughout the entire maturity period. Although the formula used for the calculation of the borrowing limit also changed, [47] this will not mean a significant change in practice, as – based on our

[44] 1. The competent regional directorate of the Hungarian State Treasury 2. The regional government office or the Government Office of the Capital City 3. The government acting upon minister's proposal (including the Minister for Municipal Affairs and the Minister for Public Finances).

[45] According to the quoted regulation the time frame of a decision is ca. 2-3 months. With the prior public procurement process also considered, the full administration of a loan agreement may last for even 4-5 months.

[46] For this reason, municipalities rather request the extension of the grace period of existing bonds/loans.

[47] From 2012 own revenues do not include the income from motor tax, administration fees and interests. Proceeds from sureties and asset disposal, on the other hand, are included in the calculation. Payments to trade debtors and replacement expenditures related to assets in concession are not considered as limit-decreasing items from 2012. The limit ratio sank from 70% to 50%, while – according to the new formula – own revenues have to be discounted with the ratio prior to the consideration of liabilities (until 2011 liabilities were deducted from own

prior estimation – the municipal sector will be free to run up debt with an additional debt service of HUF 125 billion until the new borrowing limit is reached.

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Appendix

Table 1: Macro variables in each scenario considered in the estimation of the debt service of municipal bonds from November 2011

	Best case scenario	Probable scenario	Worst case scenario	Estimation interval	Estimation interval %
HUF/CHF	200	240	280	80	33%
HUF/EUR	260	300	340	80	27%
CHF Libor 3m	0.004%	0.005%	0.006%	0.002%	40%
CHF Libor 6m	0.040%	0.050%	0.060%	0.020%	40%
Bubor 3m	5.200%	6.100%	7.000%	1.800%	30%
Bubor 6m	5.200%	6.100%	7.000%	1.800%	30%
Euribor 3m	1.300%	1.500%	1.700%	0.400%	27%
Euribor 6m	1.500%	1.750%	2.000%	0.500%	29%

Source: Author's elaboration

Table 2: Parameters considered in the estimation of the debt service of municipal bonds

	Interest margins used in the estimation, bp	Grace periods used in the estimation, years
Budapest districts	64	4.00
Villages	118	3.49
Counties	75	4.18
Ciy with county rights	156	4.15
Towns	85	3.48

Source: Author's calculations

Note: The parameters represented above were applied to bond issuances if the requested data were not available. The parameters are volume-weighted values. Interest and principal payment periods were set at 3 months and 6 months on a 50-50% basis.

Economic growth with incomplete financial discipline

István Bessenyei Márton Horváth

We introduce soft budget constraint and stop-go policy into a stable two-sector AK macro-model. As the extended model does not have any fixed point, we use computer-simulation to examine the dynamic behaviour of the model. We show that depending on the starting position and the parameter values, the economy can follow a path leading to the collapse or moves oscillatory avoiding the downfall. Further on, we demonstrate that the partial shortage of financial discipline leads to wrong investment decisions which slow the process of capital accumulation. The macroeconomic path directed to the collapse can be reversed by strengthening the financial discipline, keeping down corruption, modification of preferences in investment policy or exogenous technological change.

Keywords: chaotic dynamics, simulation, bribe

1. Introduction

According to the consensus evolved through the last decades, the most important sources of the economic growth are the growth of population, investments to human and physical capital and technological development. The developed countries and Hungary are characterized by the decrease of population instead of growth, therefore in this paper we do not examine this factor, and the effect of technological development is placed in the third section. First of all, we focus on the investment processes.

In a pure market economy investment decisions are made by private companies, but in a typical mixed economy the role of the governmental investments is highly significant, especially in human and physical infrastructures. There are many examples like construction of motorways or underground lines and investments in higher education. These projects financed by public money strengthen the redistributive mechanisms opposite to the processes of the market economy.

However, corruption is a constant accompaniment of redistribution, furthermore, based on Mauro (1998), corruption distorts the structure of investments, because politician prefer to contribute those non-productive giant investment projects through which they can earn bigger amount of bribe easier. Thus governmental investments promote economic growth only partially. A significant part of financial investment resources penetrating back to a particular group of private households, and these resources are dissipating away from the economy.

In this paper, we add this so called treasury corruption introduced by Hámori (1998) to a simple two-sector dynamic macroeconomic model as Bessenyei (2001) did it formerly to Ramsey's model. Instead of applying those assumptions, herewith, we base on the two-sector AK model demonstrated by Jones (1976). Accordingly there are two separated producing sector in the economy. The first one manufactures productive goods and the second one makes consumer goods. The technology of these sectors is characterized by the following production functions:

$$Y_i(t) = A_i K_i(t),\ i = 1,2, \qquad (1)$$

where the sector's output is directly proportional with the amount of the applied capital, $K_i(t)$. Apart from technological progress, we assume A_i constant. The form of the production function suggests that

we do not take into consideration the decreasing return of capital. This is not unrealistic because the decreasing return would be valid if we constrained the definition of capital only to physical capital. Since a significant part of the governmental investments targets developing of human capital, in our model we use the expression of capital in this broader way.

The only scantily available resource is physical and human capital which is assumed not malleable. That means if a capital good is installed in a sector, it is not able to be transferred to the other sector. Let $\mu(t)$ to sign the ratio of capital installed in the first sector which is able to be enhanced by the economic policy in power through governmental investments. Accordingly:

$$K_1(t) = \mu(t)I(t) - \delta_1 K_1(t) \tag{2}$$

and

$$K_1(t) = (1-\mu)I(t) - \delta_1 K_1(t) \tag{3}$$

where δ_1 is the rate of amortization of capital goods in the sector i, while $I(t)$ refers to the gross investment.

We assume that by paying bribe, companies can usually enforce their will efficiently. Therefore they produce such pseudo capital which has no marginal productivity and do not serve any sector to develop. This assumption is suggested by Acemoglu and Verdier (2000). They conclude that the most essential consequence of corruption is the dysfunctionality of central reallocation of resources. Since the uselessness of capital in the sector manufacturing consumption goods would became quickly obvious, they are installed in the first sector. To earn more bribe from giant projects, the government endeavor to increase the rate of investments in the first sector, thus $\mu'(t) > 0$ hence the first sector turns back to itself. The increase of the ration of unproductive investments leads to financial disorder first of last, which causes the fall of consumption. Following Kornai (1980), we assume that the decrease of consumption has a social limit of tolerance. If this limit is violated, the government turns up against the spontaneous processes mentioned above. This intervention is called half-monetary restriction by Soós (1986), which results $\mu'(t) \ll 0$. Accordingly the motion equation of $\mu(t)$ is the following:

$$\mu'(t) = \begin{cases} \gamma_1\mu(t), & \text{if} \quad C > 1-d \\ \gamma_2\mu(t) & \text{else} \end{cases} \tag{4}$$

where the parameters of the stop-go economic policy are $\gamma_1 < 0 < \gamma_2$. Consumption is normalized to unity, therefore $C(0) = 1$, d is the social limit of tolarence against the consumption decrease. On the other hand, the pseudo capital goods cannot be included in investments,

$$I(t) = \big(1-\mu(t)\big)^{\alpha} Y_1(t), \tag{5}$$

where α determines the ratio of pseudo capital goods compared to first sector's output. If $\alpha = 0$, then $I(t) = Y_1(t)$, and ratio of pseudo capital goods is zero. This equation emphasises that the more the governmental industrial policy prefers the first sector, that is the higher the $\mu(t)$ is, the higher the ratio of wrong investments in the output of the first sector.

Accordingly the growth rate of investment good manufacturing sector is:

$$\hat{Y}_1(t) = \mu(t)\big(1-\mu(t)\big)^{\alpha} A_1 - \delta_1 \tag{6}$$

Therefore the current value of $\mu(t)$ determines the growth rate of the first sector, and $d\hat{Y}_1(t)/d\mu(t) = \big(1-\mu(t)\big)^{\alpha}(1-\alpha\mu(t))$. Consequently if α is not too high, that is $\alpha < 1/\mu(t)$, the capital installed in the in the first sector results faster growth of this sector.

The growth of the consumption good manufacturing sector is not so obvious:

$$\hat{Y}_2(t) = \big(1-\mu(t)\big)^{1+\alpha}\frac{A_2}{z(t)} - \delta_2, \qquad (7)$$

where the ratio of the two sectors' output is $z(t) = Y_2(t)/Y_1(t)$. Both the increase of $\mu(t)$ and $z(t)$ can decrease the growth rate of the second sector. It comes from the definition of $z(t)$ that $\ln z(t) = \ln Y_2(t) - \ln Y_1(t)$. If we differentiate both side by time, the growth rate of z is given by the difference of the growth rate of the two sectors. Accordingly, the equation of motion for $z(t)$ is the following:

$$z'(t) = (1-\mu(t))^{\alpha}\big[\big(1-\mu(t)\big)A_2 - \mu A_1 z(t)\big] - (\delta_2 - \delta_1)z(t) \qquad (8)$$

Bessenyei (2006) proved that the model introduced above can win another economic interpretation. The detailed economic explanation of the differential equation (4) and the algebraic derivation of the equation of motion (8) can also be found in this article. Our purpose is to examine the dynamics of the model as properly as it is possible.

2. Chaotic dynamics

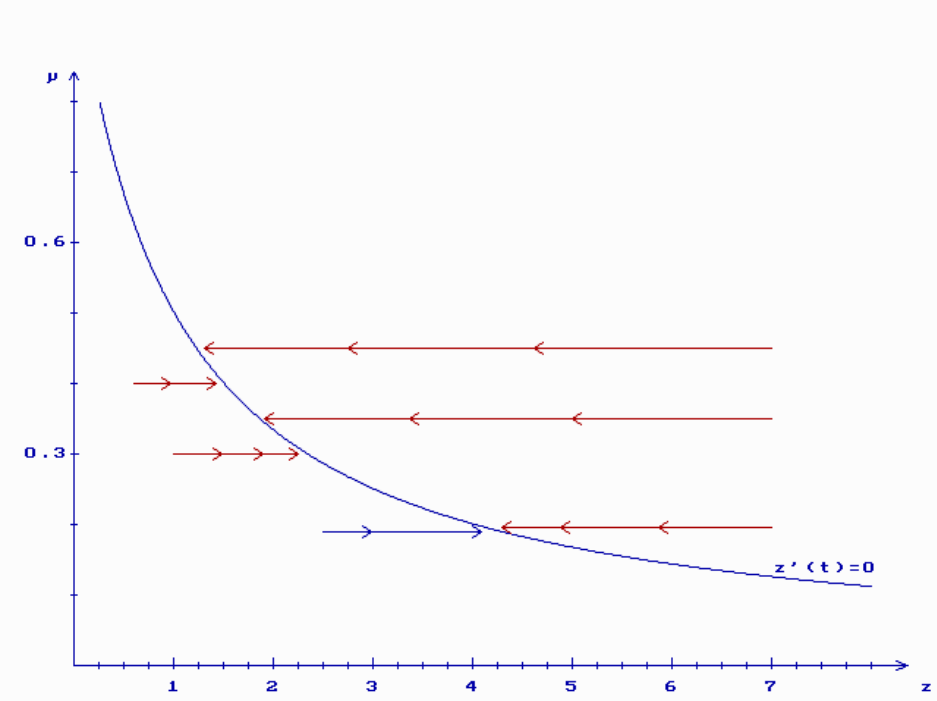
It is obvious that the dynamic system consisting of equation (4) and (8) has fixed point only if μ is zero, therefore the government do not follow the stop-go policy introduced above. In this case $\gamma_1 = \gamma_2 = 0$. Figure 1 shows that on one hand the fixed point is stable, on the other hand the higher the value of μ, the lower the value of z, therefore the higher the ratio of investments installed in the first sector, the lower the equilibrium ratio of consumption to investments.

The $z'(t) = 0$ curve in Figure 1 contains those values of endogenous variables which ensure the balanced economic growth, therefore the output of the two sectors increases in the same way and so $Y_2(t)/Y_1(t)$ is constant. However, equation (1) shows that if the government let the corporate will to increase μ, and later it needs to restrict this ease, and $\gamma_1 < 0 < \gamma_2$, then there is not any combination of endogenous variables which could satisfy $\mu'(t) = 0$.

Figure 1 was designed with parameter values in Table 1. The last two columns gives the initial situation of the two trajectories on the bottom.

Therefore if the government cannot avoid the stop-go policy introduced in the first section, then the dynamic system described by equation (4) and (8) has no fixed point. In this case the available mathematical methods of stability test can not be applied. With computer simulation, it is easy to prove that the behaviour of the system is chaotic. Shone (2002) presents more details on simulation of simple and complex dynamic systems with package of software like Mathematica or Maple, but it skips simulation of chaotic systems. Figure 2 (like the previous one) was designed with an own developed software, and represents in the $(z(t), \mu(t))$ phase plane that the model is very sensible to the initial value of $\mu(0)$. Since endogenous variables are constrained, the behaviour of the system is chaotic.

Figure 1: Stable equilibrium of the model



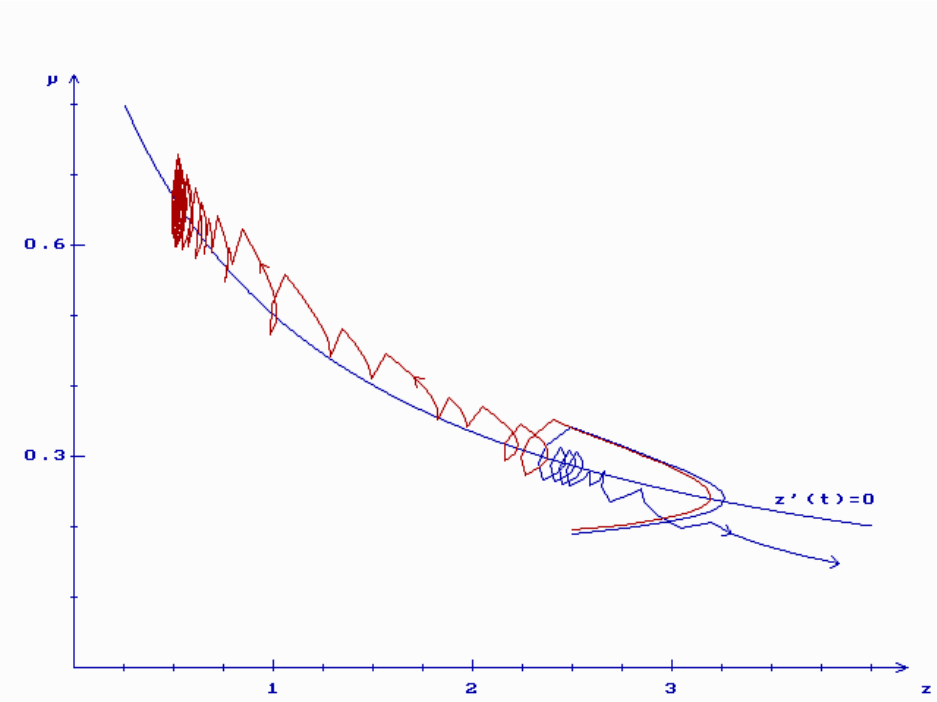
Source: own design

Table 1: Parameters and initial values of the two simulations

Trajectory	α	A_1	A_2	δ_1	δ_2	γ_1	γ_2	d	$z(0)$	$\mu(0)$
1	1,1	1	1	0,2	0,2	,04	,08	0,25	2,5	0,190
2	1,1	1	1	0,2	0,2	,04	,08	0,25	7	0,195

Source: own design

Figure 2: Sensibility to the initial position



Source: own design

Compared to the date in Table 1, the difference is only that both trajectories start from $z(t) = 0{,}25$. In the case of the Trajectory 1, the ratio of the manufactured capital installed in the first sector is so low that the values of the endogenous variables lead to economic collapse after serious fluctuation. The collapse is caused by the decreasing ratio of the capital installed in the first sector which leads to the decrease of investment based on the equation (6). Equation (7) results the fall of the output in the second sector because $z(t)$ increases limitless.

Trajectory 2 differs from the previous one only slightly in the initial point. The sector manufacturing investment goods has a half percent bigger share of investments, but this is sufficient to avoid the collapse. It is traceable in Figure 2 that the two trajectories move together for a while, but later they split up, and in the second case, the cyclic fluctuation of endogenous variables gets more or less stabilized. From theoretical point of view, it is an interesting question whether a limit cycle evolves, but practically it does not matter because so much time elapses to the stabilization of the fluctuations trough which the values of parameters must change. Our model is appropriate for medium-term forecast rather than on the long run.

3. Comparative dynamics

The simulation above shows the system's sensibility to the initial position expressively, but from the practical point of view it is very important to clarify what an effect a change in a value of a parameter has on a phase curve. The answer is especially interesting in the case of a trajectory directing to collapse. The question resembles to the problem of comparative statics where the modification effect of a parameter change on the equilibrium state is made clear. In our model there is not a fixed point that means equilibrium situation, therefore the comparison of equilibrium states is not possible. However, we have the opportunity to compare trajectories initiating from the same point with different parameters that is comparative dynamic analysis.

In the simulations to be showed in this section, we always use the parameters of Trajectory 1 presented in Table 1. In this case the economy characterized by equation (4) and (8) is directed to the collapse as showed in Figure 2. This trajectory is still presented, and we analyse how the parameters should be modified to avoid the collapse.

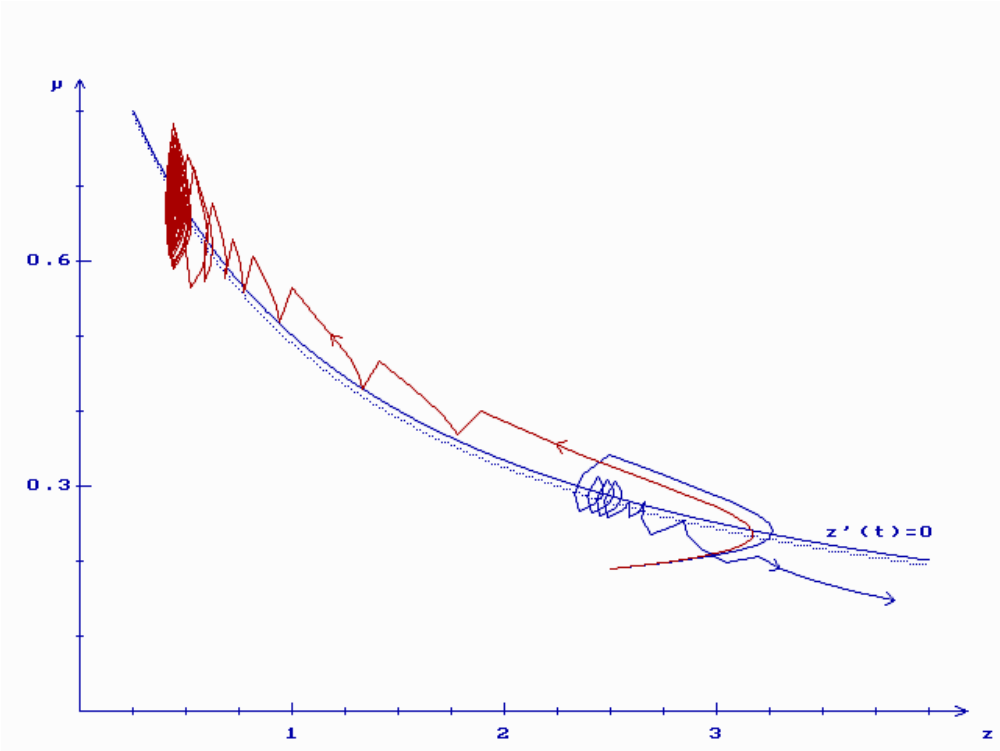
3.1. Technological progress

The determining role of technological advance in economic growth was mentioned in Section 1. Basu et al. (2004), Gali and Rabanal (2004) pointed that technological advance is not an equable process but impacts on different technologies and industries like shocks. Our two sector model allows us to examine the effect of technological shock in one of the two sectors. A shock effect like this is represented by the increase of the parameter A_i in the sector's production function. In Figure 3 we show what happens if the technology applied in the first sector is improving with 5 percent kept the rest of the premises (parameters and the initial point) unchanged.

In the beginning the two trajectories move together tightly, later less tightly, and after a while they split up. The 5 percent improvement of technology is sufficient for economy to reach a trajectory avoiding collapse. In the same time it is also represented that the cyclic fluctuation of economy is still kept up after the technological shock. The reason is that opposite to the cyclic model of Bródy (2002, 2003), the fluctuation is not caused by the multiple sector characteristic of our model but trough the governmental economic policy described by equation (4). The $z'(t) = 0$ line appears twice in Figure 3

because changing the value of A_1 modifies the position of this line. It is easy to check with replacing the left side of equation (6) with zero. The line belonging to the higher parameter value is plotted with broken line in Figure 3.

Figure 3: The effect of positive technological shock



Source: own design

3.2. The effect of investments with better foundations

In spite of the assumption of the neoclassical economics considered as mainstream, our model offers the opportunity of deviance in investment activity if a part of the capital goods manufactured by the first sector is useless pseudo capital good created trough the decision mechanism influenced by corruption. It is obvious to ask whether the reduction of this deviance (i.e. restricting corruption[1]) helps to avoid collapse. In Section 1, we mentioned that it could be represented trough decreasing the value of α. Figure 4 shows what happens if the value of α decrease to 1.05 from 1.1 as it was applied above in simulations and in Table 1.

We point another possible interpretation of α too. Considering equation (5), this parameter determines percentage of increase in the volume of productive investments if the government raises the ratio of capital installed in the second sector manufacturing consumption goods (assumed corruption-free). If investment decisions are free from corruption in both sector then the value of α is zero.

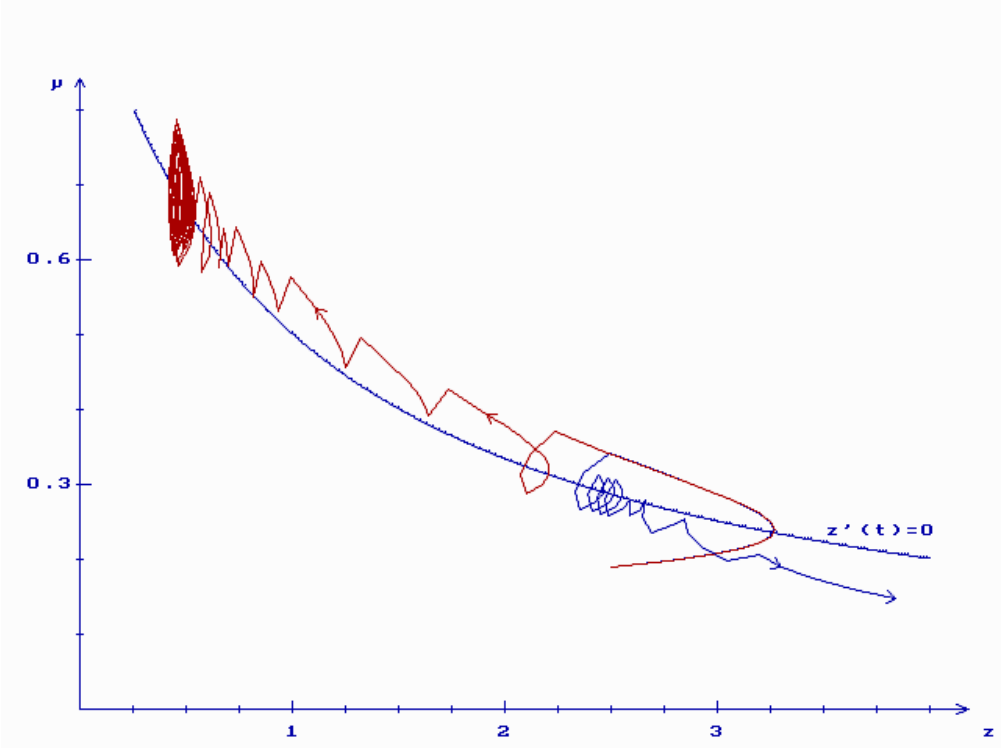
According to the comparative dynamic analysis, the effect of reducing corruption is not significant first. The two trajectories move together much further than they did in the case of technological shock. It is almost impossible to separate them. But later the difference becomes significant like in Figure 3.

We could attach the same notifications to Figure 4 with one addition: α has also an effect on the position of the $z'(t) = 0$ line according to the equation (8). Therefore the change of parameters

[1] Petschnig (1993) interprets corruption as the deviance of bureaucracy.

modifies the position of the line again. However, in this case the two lines are so close to each other that is not visible in the diagram.

Figure 4: The effect of better foundation of investment decisions



Source: own design

4. Conclusions

The Nobel-prize winner economist Gerard Debreu wrote about the relationship between theoretic economics and informatics in a quite pessimistic way: "Most of the economists (unlike physicians) count rather on the back of an envelop than they switch on a computer" (Debreu, 1991). Shone (2002) and this paper prove that the situation was significantly improved. Our analysis represents that application of informatics in economics is also reasonable because such a simple macroeconomic model like the one introduced here can have quite complex dynamic features. Herewith it is represented by the lack of the fixed point in the dynamic system, thus the long standing mathematical tools of examining dynamic systems can not be applied. In this case the method of computer simulation can be used well for macroeconomic forecast. Visualization of results was facilitated by the fact that our model is a planar system, therefore it contains only two endogenous variables. In case of more endogenous variables, designing figures with the plane phase diagram technique would be not sufficient[2].

Computer simulation allows us to earn more important consequences. Here we have demonstrated some of them only. Accordingly, there are more opportunities to reverse the macroeconomic process directing to the collapse of economy:

1. Preferring the sector manufacturing investment goods (heavy industry) (Figure 2)

[2] Our model has originally three endogenous variables: $\hat{Y}_1(t)$, $\hat{Y}_2(t)$ and $\mu(t)$. Introducing $z(t)$ was necessary just to reduce the number of endogenous variables to two.

2. Positive technological shock in the sector manufacturing investment goods (Figure 3)
3. Restricting corruption (Figure 4)

The ideal situation can be seen in Figure 1 which was designed with the assumption that there is no wrong investment decision (no corruption). In this case the government is able to resist against the intention of big companies to increase μ, therefore it does not need to apply an economic policy to reduce investment from time to time. However, the reality of these assumptions is quite low. It is enough to think of the study of recently departed András Bródy (2003) who quoting the Sanskrit Arthasastra notes that it is so hard to disclose the corruption of a state official as to answer the question whether a fish drinks from the water in which it lives. Staying at the Sanskrit metaphor, the computer simulation introduced in this paper allows us to conclude that from the point of economic growth it is not irrelevant how much that fish drinks.

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Development and social security system sustainability

Răzvan-Dorin Burz

In this paper we propose to investigate the link between economic development, social security system and the sustainability of the policies pursued by states. In doing so, we start from clarifying and summarizing the main ideas on the concepts of development and social security. Depending on the approach to social security (narrow or broad) and the developing status of the states (developed or developing) we propose a matrix of classification and analysis that can offer new perspectives on decisions about type of policy to be pursued by governments to ensure sustainable development and social security system sustainability.

Keywords: economic development, durable development, sustainable development, social security, sustainability

1. Introduction

Crisis context should determine governments to adopt their policies to ensure sustainability of social security. Their choice regarding social security policies should be made in correlation with the level of economic development, traditions, culture, and last but not least taking into account socio-economic circumstances. In this paper we propose to investigate the link between economic development, social security system and the sustainability of the policies pursued by states. In doing so, we start from clarifying and summarizing the main ideas on the concepts of development and social security. Depending on the approach to social security (narrow or broad) and the developing status of the states (developed or developing) we propose a matrix of classification and analysis that can offer new perspectives on decisions about type of policy to be pursued by governments to ensure sustainable development and social security system sustainability.

2. The concept of development

Starting from Colin Clark's definition of economic growth as "a rapid and sustained real output per capita" the economic literature generally accepted this concept as a quantitative increase, steadily of the national economy, expressed as a ratio of GDP and population. Later, other economists have made clear distinction between economic growth and economic development. Gunnar Myrdal wrote: "My understanding on the development is a change of the whole social system, in other words it is not only production, distribution of the production, but also the mode of production and standard of living, institutions, attitudes and policies" (Myrdal, 1973). Therefore it may be considered that economic development includes all socio-economic areas, marking a continuous refresh process, of the emergence of new branches and sub-branches, products, technologies, division of production and territorial distribution of population under the conditions of social division of labor, rational diversification and specialization of production.

Between economic growth and economic development there are differences in scope and content. French economist Francois Perroux said: "A developing economy can be different from a growing economy. Global product per inhabitant in the absolute amount may have increased in the past and may still grow without people and the economic environment being exposed to development

conditions "(Perroux, 1969). In other words, between the two processes there is a relationship of dependence - there can be growth without development, but not vice versa (Dobrota, 1997).

Currently, the concept of development seems indissolubly linked to the sustainability. Sustainability is treated as a feature - quality of development – of the evolution of human social system. Although the term is widely used, especially in everyday speech, the majority of the economical literature does not present a definition of the term. An explanation is found in a paper (Popa et al., 2009) which states that the term comes from English and is defined as "quality of human activities to take place without exhausting available resources and without destroying the environment, therefore without compromising the ability to meet the needs of future generations (...) when referring to overall economic development of countries or regions, is usually preferred the synonymous term durable development." At first sight following ideas derive: sustainability is a characteristic of a human activity that has consequences for the geographical environment ("as a human activity"), being sustainable means not compromising on the ability to meet the needs of future generations in the sense to not exhaust the available resources and not to destroy the environment – a kind of harmony with everything around – an activity that fits harmoniously in macro system without affecting the whole, the definition of the term points to the association of development – sustainable development – which is considered to be synonymous with the durable development. The explanatory dictionary of English language (Pearsall, 1999), highlights the defining features of the concept as "preserving an ecological balance by avoiding depletion of natural resources" (in association with the term development - sustainable development), and "ability to maintain a certain level" (in association with the term economic growth - sustainable growth).

As a utility, in the majority of the literature that we studied there was no differentiation between the terms sustainable development and durable development, being regarded as substitutes. At first sight the differentiation appears to be due only to the origin of literature – the French expression "développement durable" and the Saxon expression "sustainable development". Dinga sees four differences between concepts and campaigns for the use of sustainability at the expense of development / sustainable growth, the latter can only be used "metaphorically or by abuse of language" (Dinga, 2009): sustainability is a dynamic feature of systems in the natural environment in which systems are dissipative, while the concept of sustainability refers to the significance of persistence over time by itself - its own existence, the concept of sustainability refers to the significance of the possibility of long time maintenance in an active way, the sustainability of a non-natural system is an "assisted sustainability" - reason based on the fact that the principles necessary to maintain a steady state dissipative system must be "purchased" due to the increase of entropy universal growth rate, while only show durability about sustainability can show stationarity and the increase or decrease - as opposed to durability, sustainability allows construction such as: sustainable growth and unsustainable growth, decline and decrease unsustainable sustainable. Other works address sustainability as a principle - sustainable development criteria (Zaman and Gerasim, 2000). There are authors who criticize the use of the term sustainability. The logic is as follows: given that sustainability refers to an unspecified long time period and steady growth lead to very high results in a short time, we can conclude that "sustainable growth" implies "endless growth", but resources are limited. As such, the term applied to material things is an oxymoron (Bartlett, 2006). The latter contrast with Dinga's idea, that sustainability can show both on growth and on the decline.

As understanding, one of the first definitions of the term sustainable development, but also the most common is the one proposed in 1987 by the World Commission on Environment and Development (WCEF), headed by Gro Harlem Brundtland, Prime Minister of Norway, in the "Brutland report: "ensuring a development that meets the needs of present generations without compromising the ability

of future generations to meet their own needs" (CED, 1987). The concept is the result of an integrated approach in which environmental protection and long-term economic growth are considered complementary and interdependent. Basically combines three factors: the development needs of humanity, the protection and preservation the natural environment, maintaining the ability of future generations to meet their own needs. The document has historical relevance because of at least two reasons: the debate on the idea of international responsibility for the future and secondly discuss the idea of development, not anyway, but sustainable.

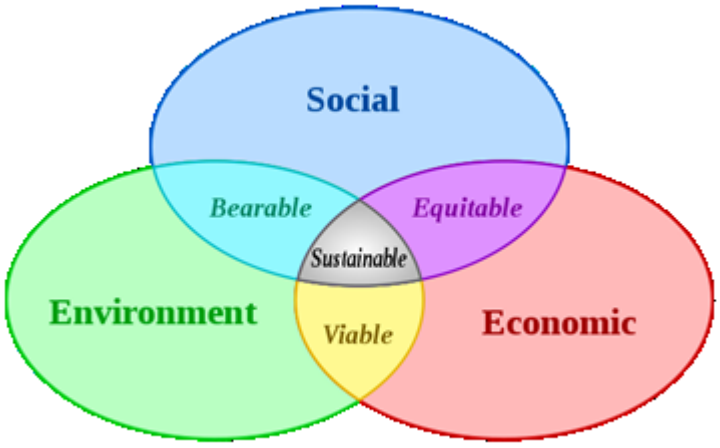
After Brutland report, the issue of sustainable development has gained global political dimension: the World Conference on Environment and Sustainable Development in Rio de Janeiro (1992), UN General Assembly Special Session and addressing Millennium Development Goals (MDGs) (2000) World Conference on Sustainable Development in Johannesburg (2002). At EU level, sustainable development became an undertaken subject since 1997, when it was included in the Maastricht Treaty. In 2001 Sustainable Development Strategy was adopted in Gotheborg, which was added an external dimension in 2002 in Barcelona and in 2006 the revised Sustainable Development Strategy of the European Union was adopted. The seven priority axis of the European Union Strategy for Sustainable Development revised in 2006 were: climate and energy changes, sustainable transport, conservation and natural resources management, sustainable consumption and production, public health, social inclusion, demography and migration, global poverty and sustainable development challenges.

From our perspective, we believe the following preliminary conclusions must be retained:

- as a particularity, we find the concept most often used in the macroeconomics literature, environmental and business, and less in the social systems area;
- nowadays sustainable development objectives are assumed by most international bodies, governments and private enterprises;
- although initially development was meant to be a sustainable solution to ecological crisis caused by intense industrial exploitation of resources and continue environmental degradation and seeks first the preservation of environmental quality, today expanded the concept over the quality of life in its complexity, and under economically and socially aspects. An objective of sustainable development, for example, is now the concern for justice and equity between states, not only between generations;
- formulating a universally accepted definition is difficult because sustainability covers a huge range and variety of problems;
- the added value that the concept of sustainability brings is to highlight the inseparability to address issues in isolation. The economic, ecological and the social environments must be seen as interconnected. Sustainability means supporting the economic, protecting the environment and reaching social targets in the same time, and if possible with a positive synergistic effect as big as possible;
- as a concept development evolved by joining the term sustainable from the simple definition to holistic approach;
- definitions of sustainable development can be grouped into two main categories, conceptual definitions aimed to highlight the concept vision (the nature value, ethics, equity), and operationalized definitions that can be translated through the evaluation indicators (economic, environmental, and social indicators);
- as development of operationalized definitions to facilitate understanding the concept of sustainable development and the relationship between its components, most often a graphical model using overlapping circles is used as. In this model (Figure 1) sustainable development

assumes both environmental and resources' protection but also reaching social and economic targets. The three components are viewed as having equal importance. Sustainable development is achieved in the center of the model, which intersects all three categories of objectives. In terms of components, we consider this model to be the most relevant.

Figure 1: Sustainable development frame



	Social	Environment	Economic
Objecttive	Equity Social cohesion Social mobility Participation Cultural identity Standard of living Etc.	Healthy environment – pollution prevention Rational use of renewable natural resources Conservation of nonrenewable natural resources Biodiversity Etc.	Growth Efficiency Stability Etc.
Evaluation indicator	Life expectance Nutrition level Education Population Mortality Etc.	Air quality Water quality CO2 emission Species diversity Land cover and utilization Etc.	GDP per capita Consumption Saves Etc.
	Social – Environment	**Social – Economic**	**Environment – Economic**
Descriptor	bearable	equitable	viable
Objective	Global and nation natural resource administration Environmental law application Etc.	Business ethics Fair trade Human rights Etc.	Energetic efficiency Natural resources utilization stimulation Etc.

Source: Adapted and processed after: Soubbotina and Sheram (2000); Rodriguez et al. (2002)

3. Social security and sustainable development

Explanations on the concept of social security found in the economic literature are much more diverse than those relating to sustainable development. They vary not only as perspective but also as a way of understanding. A development of the issues I did in a previous paper (Burz, 2011), as such, in this paper we intend to highlight only a few aspects regarding the broadness and relevant approach prospects.

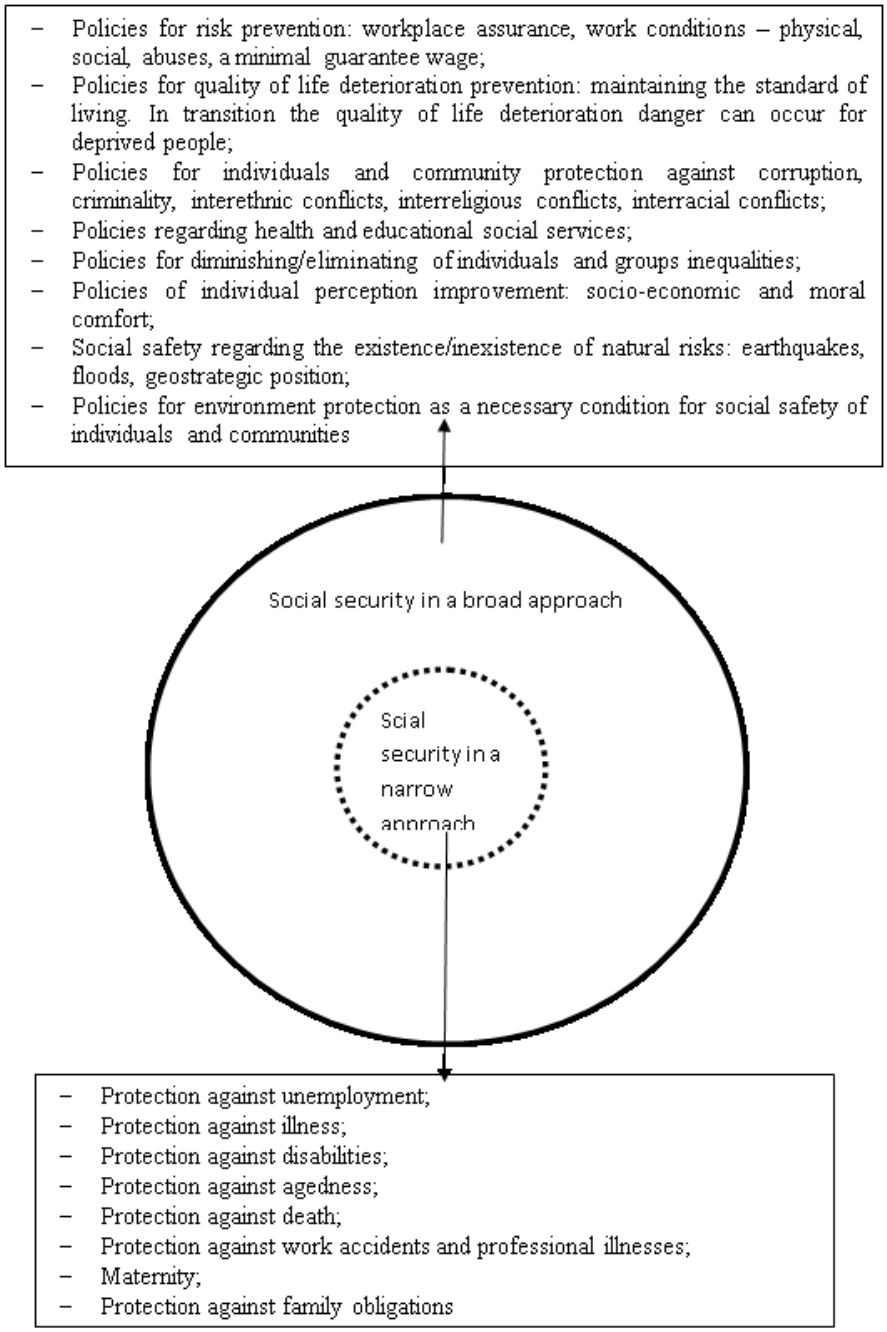
A frequently mentioned and used definition is given by the International Labour Office, which defines social security as "protection that society gives to its members through a series of public measures against economic and social misery that threatens the loss or significant reduction in earnings due to illness, maternity, work injury, unemployment, invalidity, old age or death, and providing medical care and benefits to families with children" (BIT, 1995).

From our point of view this is a narrow perspective given that it takes into consideration only those risks of participating in social life. In our opinion, social security can be seen in the wider way, situation in which would include everything that affects social welfare.

Risks typically covered by economic security are determined only in so far as to take account of a period and a particular country – depending on options and priorities (policy) and availability of resources (economic capacity). In general, any historical period has a "perfect hedge" (Gilca, 2008) risk. Multitude of risks covered is a modern trend, at least starting from the twentieth century. Today we could talk about an ideal medium which comprises, in general, the types of risks listed in the ILO Convention, although presented under the title of "minimal" (OIM, 1952). However, if we consider that different social impairment than those normally covered by social security are considered more urgent today - such as housing and urban development, nutrition, overall health, transport, public order, education, environment in which the individual lives – which if ignored can lead to massive and irreparable harm, we could extend the concept to the level of social welfare – social security including all that affects social welfare – which currently is only one component of social security. Thus, to the extent that social security would pay attention to prevention of other risks – for example, support for disaster situations, support for situations of war and to solve its consequences, subsidized housing, etc. – they become integral parts of social security.

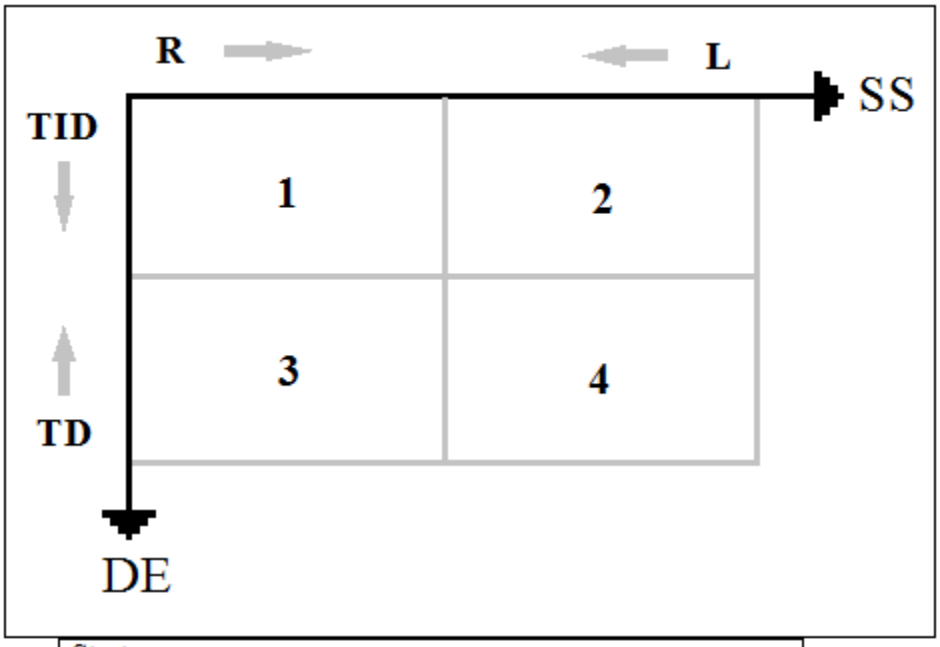
In figure 2 we schematically present social security components grouped by the way to deal with it.

Figure 2: Social security frame



From our point of view, in terms of sustainability, the way social security should be approached is based on the correlation with economic development (Figure 3).

Figure 3: Social security system approach and economic development level correlation matrix



Where:

DE – economic development;
SS – social security
TD and TID – developed and developing countries;
R and L – narrow and broad approach;
S – strategy.

In the case of the matrix:

- there is no rigid framing;
- social security urgency is given by the stringent security needs (narrow view);
- sustainability is given by the way economic development correlates with the policies of social security;
- sustainable policies: quadrant 1 (developing countries) and quadrant 4 (developed countries);
- unsustainable policies: quadrant 2 (developing countries) and quadrant 3 (developed countries).

4. Conclusion

Sustainable development aims in principle three components: the economic, ecological and the social in a temporal approach. Some approaches refer only to economic development harmonization with the natural environment, but we believe it is imperative it to include the social dimension. However, from the importance and influence perspective, social dimension cannot be treated in isolation from the other two components.

Social security is a component of sustainable development. It would be nonsense to talk about sustainable development that creates social insecurity.

Social security has its main pillar the economic support. The greater economic wealth the better premises of a public social security. Social security, in turn, can be a determining factor for ensuring sustainable development.

We believe that all models of sustainable development, and why not economic growth should include the social security variable, but also to exaggerate the role of security is as wrong as to underestimate it.

The choice of social security policies must be made by correlation with the level of economic development, traditions, culture, socio-economic circumstances.

Acknowledgement

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Responses of European competition policy to the challenges of the global economic crisis

Ábel Czékus

European competition policy has been one of the common policies since the beginning of European integration. The European level economic policy coordination and the customs union have required a uniform framework for competition policy covering the whole Community.

Nowadays the economic integration of Europe is suffering from its biggest crisis ever, which also affects companies based and/or operating in Europe. This brings about new challenges for common competition policy as it has to assure, on one hand, a legal framework to maintain fair competition. The importance of cooperation between competition authorities, for example in the field of restrictive agreements, has been recognised by the European Commission. The Commission, on the other hand, has to deal with an increasing number of merger cases because, after the decline of the number of cases in 2008 and 2009, concentrations have started to intensify again. This is due to the recovery of companies in 2010 and the relaunch of lending activity. Also, competition policy has to stimulate markets as it is also a way to put the European economy on a growing path.

Much more emphasis should be put on state aid because it does not only spur economic growth but it could have negative effects as well. This type of excessive spending is problematic in the sense of competition policy and it could eventually even worsen the long term economic perspectives of Europe.

The crisis in Europe escalated three years ago. I summarise the legal development and guidelines relating to competition policy after 2008. I examine the block exemption schemes and the extended state aid activities. These are developments that may contribute to the recovery from the crisis. It is essentially important to shape competition policy so that it effectively guards companies' adaptation process to the new economic circumstances, and stimulates their economic activity.

Keywords: competition policy, economic crisis, European Commission, legal development

1. Introduction

Nowadays economic crisis has escalated in the European Union in 2008. The crisis, that has in the meantime become the most serious in the history of the European integration, is being derived from the weakness of the banking sector and regulation (Cejnar, 2011). Clemenz and Janssen (2011) emphasize that the crisis has had negative effects not only in the banking sector, but in the real economy as well. As the crisis is being prolonged responses to the effects of it from supranational and national levels become diversified. Sometimes these laws and enforced legislation raise the question of compatibility with the relevant EU law, in the most cases with these of competition regulations (mostly State aid).

Cejnar (2011) highlights the importance of the international organizations, like the United Nations. In 2010 the United Nations Conference on Trade and Development (UNCTAD) issued a guidance

relating to the competition policy for the time of economic crises. This highlights the importance of the competition authorities overcoming the economic crisis. It states:

> *"In addition to increased coordination, the paper proposes that effective enforcement of competition policy and merger control requires that national laws are enforced with consistent rigor throughout the economic cycle and not relaxed in response to a recession. Furthermore, the paper draws attention to the increased importance of the role of competition advocacy during periods of economic troubles, stating that the effective enforcement of competition policy requires that competition advocacy is broadened to wider policy areas without compromising on the independence of competition authorities" (UNCTAD, 2010, 2nd paragraph of the executive summary).*

From the first shocks of the crisis considerable time has passed. The European Union has issued numerous binding and guiding provisions relating to the – beside others – competition policy. The policy making and enforcing power of the European Commission and national competition authorities is overwhelming. The goal of this paper is to summarize changes in the legislation approach relating to the EU competition policy.

The structure of the paper is as follows. Firstly, we will give a short overview about the competition policy system of the European Union. Dealing with a short overview of the antitrust regulation, mergers, and Sate aid policy is essential to highlight the importance of the reforms made during the crisis. In the next chapter, we will discuss the development of the legislation relating to the mentioned competition policy fields. The role of the European Commission could be presumed as pivotal in determination of the way the competition policy in the European Union progresses. Lastly, the summary will give an overall picture of changes in the European competition policy was made mostly between mid-2008 and 2010.

2. Overview of the common competition policy of the European Union

Establishing the European Economic Community (EEC, 1957), European policy makers set up competition policy into the limited number of common policies. This was made in accordance with the desire of common economic policy and coordination throughout the EEC. Only a competition policy that is unique and binding in all of the member states could result in equal economic conditions.

In the Treaty of Rome the fields of the competition policy were being divided due to the object of the regulations. Articles 85-91 set clear conditions for enterprises that would like to operate in the common market (EEC, 1957). According to these, creating cartels and antitrust were forbidden, while eliminating of dumping was possible to be asked from the Commission (EEC, 1957, Article 91 (1)). Moving along, objects of articles 92-94 are member states – setting up the fundaments of a common Sate aid policy for the EEC MSs. The most important feature of these articles is the prohibition of State aid where interstate trade clause is applicable (EEC, 1957, Article 92 (1)). The portioning (regulations for enterprises and states) reflects the importance of competition issues not only for private companies but states as well. It should also be highlighted that for these competition regulations it was a crucial need avoiding market distortion and creating a common economic area, according to the initial liberalization of movement of capital.

These major ways of regulation were being transferred to the later amendments of the Treaty establishing the European Economic Community. No great change in the initial concept was made; however, the structure and objectives were being refined. While the Treaty (now the provisions of the

Treaty on the Functioning of the European Union, Articles 101-109) lays down the core of the competition regulation, by the normal decision making process accepted secondary law supplement primary ones. Interpretation of the European Court should be noted as well as a "source" of law.

On the highest EU level, the commissioner- and Directorate General for Competition is responsible for the common competition policy.

3. Competition policy and the crisis – effects and consequences

After a short overview about the basic provisions of the legal background of the EU competition policy, we are going on dealing with the effects of the economic crisis on the competition policy of the European Union. According to the classical approach of economic prosperity cycles, economic developments occur on a wavering manner. These waves – now downturn – could restructure economies and shape a new institutional order. Hereafter we examine this phenomenon screened on the EU competition policy.

3.1. Psychology of the crisis regarding to the competition policy

Nobody challenges that competition policy has crucial role regulating markets' working in a market economy. This role appreciates during economic crisis since economic actors' likelihood for deflection is much higher than it is in normal circumstances. For this sake cutting regulations back is not an optimal way of spurring the economy. Niminet (2009, p. 68) says in reference to the Great Depression of 1929-33 that *"weakening competition laws as a tool to combat economic difficulties may have the opposite effect and works to prolong the crisis."*

In the economic crisis the biggest challenge for the European Union competition policy was/is to ensure and enforce common rules on the field of common policy mentioned, while "*the problem ... was that there was a diverse range of urgent (and ad hoc) national approaches to the crisis*" (Cejnar, 2011, p. 207). The author also reflects that the EU was concerned to avoid bid in the volume of national subsidies, to prevent the common market from distortions, to maintain legal certainty, not to be discriminatory in crisis management, etc. Therefore the EC competition policy can be regarded from two aspects: it should eliminate anti-competitive elements from the enterprises' competition practice, on one hand, and, on the other hand, to help MSs with appropriate/exceptional measures overcoming economic crisis, challenges in economic life.

Since the EU is a supranational organization, instead of enterprises MSs play important role in crisis management. However, this doesn't mean exclusivity of the former entity (or, in a broader sense: the exclusivity of governmental [including the EU institutions as well] command) overcoming the crisis, but without stricter regulation the recession couldn't be fought. As Cejnar (2011) thinks, more regulation and corporate governance is needed for success. The open question is if these "measures" help winning back confidence on the market and in the free market economy.

3.2. Changes in competition policy regulation since mid-2008

In this subchapter we will examine the development of competition policy branches (antitrust regulation, mergers and Sate aid). Decision makers await from these measures to spur the European economy, to initiate economic growth, to achieve and later maintain budgetary stability, to handle unemployment and calm down social pressure. These – macroeconomic – fields of intervention are mostly related to state activity, therefore we will firstly deal with Sate aid regulation. Hereinafter the

emphasize will be put on the other fields of competition policy for the purpose getting a complete picture about the changes in the EC competition policy.

3.2.1 State aid regulations

Due to the Article 107 of the Treaty of Functioning of the European Union, "*... any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market*" (TFEU, 2010). This means generally that granting State aid is prohibited in all of the Member States avoiding distortion of the internal market. By the way, this provision is dated back to the Treaty establishing the European Economic Community.

In 2005 a reform was initiated with the clear aim of setting the State aid activity in service of Lisbon strategy (Pelle, 2010). This new concept targeted innovation lead investment, regionalism, improvement of human capital, etc. A new (i.e. broader) group exemption scheme was created as well supporting the achievement of above mentioned goals. The group exemption scheme (800/2008/EC regulation[1]) put great emphasize on creating a new, innovation led economy, with special focus on SMEs. Thanks to the deepening crisis, the development of the State aid regulation was being diverted from the shortly reviewed orbit. A new way of Commission work was initiated: this was crisis management.

State aid regulation has the biggest effect on crisis management. This is due to the fact that state intervention doesn't affect only real economy rescue but the rescue of the financial sector as well (EC, 2011a; Nicolaides and Rusu, 2010). However, this latter was more important due to the loaning activity and the relating (absence of) confidence. This dual approach was being recognized by the MSs and the European decision making institutions. This situation presumed increased State aid activity and since the European Commission is the guardian of the Treaty provisions, it had to respond swiftly on the new circumstances. The State aid/GDP ratio, as it is illustrated on Figure 1, reached high level in some Member States in 2009.

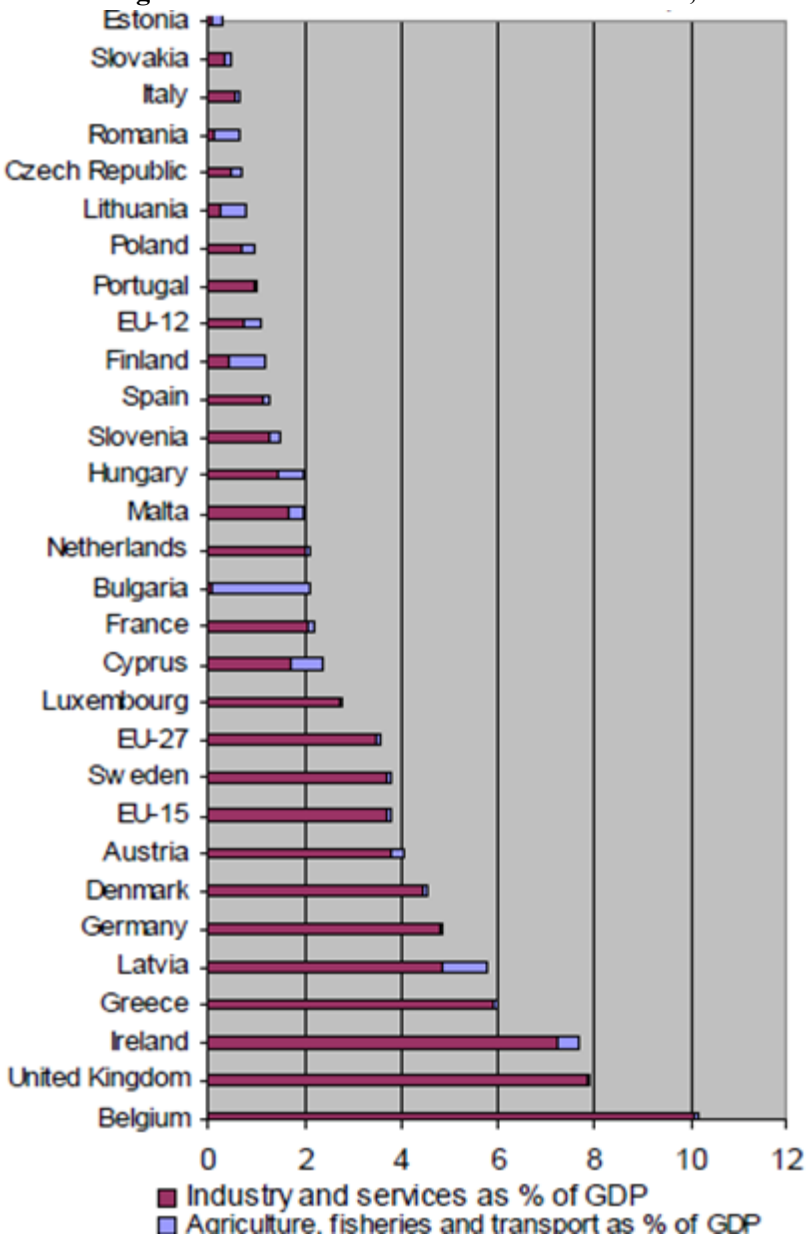
The European Commission issued from the autumn of 2008 approximately a dozen of communications, temporary frameworks and working documents and amendments handling the situation the crisis have brought (EC 2011a). The issues, that are correlated to the European Economic Recovery Plan, could be considered as reactions on emerging State aid novelties. It is worth to note that these "allowances" do not grant total freedom for MSs to spur national economies with financial assets. "They [MSs] have also been required to submit realistic restructuring plans and compensate competitors to the extent possible for distortions caused by aid" (Nicolaides and Rusu, 2010, p. 763). The authors highlight the importance of the following documents adopted by the EC combating the financial crisis (Nicolaides and Rusu, 2010, pp. 762-763):

- "application of State Aid Rules to Measures Taken in Relation to Financial Institutions in the Context of the Current Global Financial Crisis
- Recapitalisation of Financial Institutions in the Current Financial Crisis: Limitation of Aid to the Minimum Necessary and Safeguards against Undue Distortions of Competition
- Treatment of Impaired Assets in the Community Banking Sector

[1] See full text: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:214:0003:01:EN:HTML

- Return to Viability and the Assessment of Restructuring Measures in the Financial Sector in the Current Crisis Under the State Aid Rules (Restructuring Communication for Financial Institutions), and
- A Temporary Framework for State Aid Measures to Support Access to Finance in the Current Financial and Economic Crisis."

Figure 1. Total State aid/GDP ratio in EU MSs, 2009



Source: EC (2010a, p. 8)

According to the European Commission's report, in a two years long period after the 1st of October 2008, it made more than 200 decisions in State aid issues in the financial service sector (EC, 2010a). The Commission approved intervention measures that amounts € 4 588.90. This was 39% of the GDP of EU-27 for 2009 (EC, 2010a).[2] Table 1 details this amount according to aid instruments.

[2] For the period from 1st of October 2008 to 1st of October 2010.

Table 1: Commission-approved Sate aid measures by aid instruments in 2009, € billion

Aid instrument	Amount	% of EU-27 GDP
Guarantees	3485.25	30
Recapitalisation	546.08	4.5
Impaired assets	401.79	3.3
Liquidity instruments	155.77	1.3

Source: EC (2010a)

It should be noted that the European Commission highlighted in its working document that "Member States relied principally on guarantee measures which had a stabilising effect for the financial sector without weighing heavily on the public finances as opposed to more interventionist instruments such as recapitalisations or the cleaning of impaired assets. In addition, nearly 70% of approved aid relates to just 5 Member States (the United Kingdom, Ireland, Denmark, Germany and France)" (EC, 2010a, p. 47). This reflects the relative importance of aid instruments and the biggest actors of rescue measures. However, Italy as one of the biggest European economy, is not among them.

A more detailed picture can be seen examining Table 2. Table 2 represents Table 1 on a more detailed way. It is divided into the two major components of the total State aid (schemes and ad hoc interventions) and shows the actually used, and aid element amount of State aid. According to the EC working document, the 2009 actually used aid[3] was € 1106.54 billion (GDP ratio 9.3%), while MSs' aid element[4] 351.68 € billion (EC, 2010a).

Table 2: Summary table on maximum Commission-approved volumes, nominal amount and aid element, in € billion

	Approved volume 2008-2010	Actual use 2009	Aid element 2009	Total crisis aid granted, % of GDP
Schemes	3478.96	727.38	180.91	1.53%
guarantees	3026.28	612.59	77.33	0.6%
recap. measures	348.64	95.15	95.15	0.8%
asset relief interv.	62.17	1.4	1.4	0.01%
liquidity meas. other than guarantee schemes	41.87	18.23	8.6	0.05%
Ad hoc interventions in favour of individual financial institutions	1109.94	379.16	170.76	1.44%
guarantees	458.97	214.3	50.81	0.4%
recap. measures	197.44	46.36	44.49	0.3%
asset relief interv.	339.63	108.38	73.87	0.6%
liquidity meas. other than guarantees	113.9	11.11	1.5	0.01%
Total	4588.90	1106.54	351.68	2.9%

Source: EC (2010a, p. 48-49)

[3] Actually used amount (or nominal amount) expresses the actual volume of aid which was implemented by the MSs.
[4] Aid element (or gross grant equivalent) shows monetary advantage granted to individual banks.

Temporary framework for State aid

One of the preceding documents relating to the State aid that is issued by the European Commission handling the economic crisis was adopted on the 17th of December 2008. The document is named "Communication from the Commission – Temporary framework for State aid measures to support access to finance in the current financial and economic crisis"[5] and mirrors the standpoint of the European Commission about the "new role" of State aid. The main changes are, inter alia, higher upper limit of State aid, risk capital, loans and credit guarantees (Nicolaides and Rusu 2010). According to the Communication of the Commission, State aid regulation should be interpreted more submissively in relation to the following aspects of Sate aid (EC, 2009a):

- compatible limited amount of State aid
- aid in the form of guarantees
- aid in the form of subsidized interest rate
- aid for production of green products
- risk capital measures.

Two months later the EC placed an amendment[6] to the Temporary framework for State aid measures to support access to finance in the current financial and economic crisis (discussed above). One of the most important changes the amendment contained set a "limit" of intervention for MSs. The second point of the amendment draws as follows: "Therefore Member States have to show that the State aid measures notified to the Commission under this framework are **necessary**, **appropriate** and **proportionate** to remedy a serious disturbance in the economy of a Member State and that all the conditions are fully respected" (EC, 2009b, p. 1, bold mine).

Financial sector rescue

Immediately after the escalation of the financial and economic crisis in the European Union, the Council of the European Union, in formation of ECOFIN, issued his views about the crisis management in the financial sector (on the 7th of October 2008.). The Conclusion emphasizes that "the priority is to restore confidence and proper functioning of the financial sector" (ECOFIN, 2008, p. 1). Due to the ECOFIN, other important steps are to support financial institutions, to ensure liquidity, to achieve full transparency, to protect the interests of depositors, to put the Stability and Growth Pact in service of the stabilisation, etc. (ECOFIN, 2008). The ECOFIN agreed on common principles as well. These are as follows:

- interventions should be timely and temporary
- interventions should respect the interests of taxpayers
- consequences of the intervention should be born by existing shareholders
- MS governments should carry about a change of management
- the remuneration of the management could be checked by the MS governments
- competitors' interests must be protected
- paying attention on negative spillover effects of the interventions (ECOFIN, 2008; Mateus, 2009).

Demonstrating the above mentioned rescue operations, Table 3 shows the 2009 expenditures on guarantees granted for liabilities of financial sector. The approved volume for 2008-2010 with its amount of 3485.25 billion € is grandiose.

[5] See full text: http://ec.europa.eu/competition/state_aid/legislation/temporary.html
[6] See full text: http://ec.europa.eu/competition/state_aid/legislation/atf_en.pdf

Table 3: Guarantees granted for liabilities of financial institutions in 2009, € billion

	Approved volumes (01.08.2008-31.7.2010)	Actual use in 2009	Aid element for 2009	% of aid element in relation to EU-27 GDP for 2009
Schemes	3026.28	612.59	77.33	0.6%
Ad hoc interventions	458.97	214.3	50.81	0.4%
Total	3485.25	826.89	128.14	1%

Source: EC (2010a, p. 52)

On the 25th of October 2008 the European Commission issued his point of view about the rescue of the financial institutions. The document, that is in accordance with the 7th of October 2008 ECOFIN Council Conclusions, is named "Communication from the Commission – The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis"[7] and contains the main guidelines the EC considers applicable to overcome the economic crisis in the financial sector. As the document says,

> *"The ECOFIN Council on 7 October 2008 adopted Conclusions committing to take all necessary measures to* ***enhance the soundness and stability of the banking system in order to restore confidence and the proper functioning of the financial sector.*** *The* ***recapitalisation*** *of vulnerable systemically relevant financial institutions was recognized as one means, among others, of appropriately* ***protecting the depositors' interests*** *and the stability of the system. It was further agreed that public intervention has to be decided on at* ***national level*** *but within a* ***coordinated framework*** *and on the basis of a number of EU common principles. On the same occasion the Commission offered to shortly issue guidance as to the broad framework within which the State aid compatibility of recapitalisation and guarantee schemes, and cases of application of such schemes, could be rapidly assessed" (EC, 2008a, p. 1, bold mine).*

Recapitalisation of financial institutions

The Commission posted a new Communication that affects the banking sector as well. The "Communication from the Commission – The recapitalisation of financial institutions in the current financial crisis; limitations of aid to the minimum necessary and safeguards against undue distortions of competition"[8] was aimed to supplement the ECOFIN Conclusions (that of 7th of October 2008) and Eurogroup statement on crisis management. As it can be read in the introduction of the Communication, [the Banking Communication] "recognizes that recapitalisation schemes are one of the key measures that Member States can take to preserve the stability and proper functioning of financial markets" (EC, 2008b, p. 2.). The Communication accepted the statement of the mentioned forums taking from them that

> *"Governments commit themselves to* ***provide capital*** *when needed in appropriate volume while favouring by all available means the* ***raising of private capital****. Financial institutions should be obliged to accept* ***additional restrictions****, notably to preclude possible abuse of such arrangements at the expense of non beneficiaries, [and] legitimate* ***interest of competitors must be protected****, in particular through the State aid rules" (EC, 2008b, p. 2, bold mine).*

[7] See full text: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:270:0008:0014:EN:PDF

[8] See full text: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:010:0002:0010:EN:PDF

The Communication sets common objectives that should be followed. It concerns restoring financial stability, beside others for the purpose of ensuring lending operations to real economy. It marks as common objective treating insolvency as systematic risk. The guideline, stressing the depth of the crisis, mentions the collapse of Lehmann Brothers as well (EC, 2008b). However, the goals listed are strictly correlated to each other and cannot be achieved separately.

Similarly, the European Commission in his working document for State aid informs us about the aggregated amount of State aid spent for recapitalization. This is represented in Table 4. As we can compare the amount for recapitalization and financial sector rescue, we can state that the latter counts far more bigger amount than the previous expenditure.

Table 4: Recapitalisation measures for 2009, in € billion

	Approved volumes (01.08.2008-31.7.2010)	Actual use in 2009	Aid element for 2009	% of aid element in relation to EU-27 GDP for 2009
Schemes	348.64	95.15	95.15	0.8%
Ad hoc interventions	197.44	46.36	44.49	0.3%
Total	546.08	141.51	139.64	1.1%

Source: EC (2010a, p. 53)

It should be noted that the Communication lists three types of possible distortions of competition that could occur by recapitalisation. Member State bank recapitalization may not result in distortion of competition by giving undue competitive advantage to his own banks. National assistances ensured to banks may lead to "subsidy race among Member States" (EC, 2008b, p. 3), therefore it could result in a disadvantageous situation for other MSs financial institutions. This point is characterized by "ensuring fair competition between Member States" (EC, 2008b, p. 3). On the other hand, there is no differentiation between the banks of MSs, therefore it could give an undue advantage for banks with worst results ("ensuring fair competition between banks" (EC, 2008b, p. 3). And thirdly, it is avoidable for the banks to be rescued only by public sources, but they have to look for sources from the markets as well. This principle is known as "ensuring a return to normal market functioning" (EC, 2008b, p. 3). The European Commission would have particular role in the assessment of the risk, and eligibility and criteria.

Question of impaired bank assets

The European Commission communicated in the spring of 2009 its views about the treatment of impaired assets that emerge in the banking sector.[9] The European Union and Member States recognized at the beginning of the crisis that without support (i.e. State aid and interventions) the banking system was not sustainable in the Community. For these purpose they introduced the above mentioned rescue measures. However, an other supporting scheme was communicated by the EC, and it was relating to the impaired bank assets. It, as the fourth paragraph of the introduction says, "… focuses on issues to be addressed by Member States in considering, designing and implementing asset relief measures. At a general level, those issues include the rationale for asset relief as a measure to safeguard financial stability and underpin bank lending, the longer-term considerations of banking-sector viability and budgetary sustainability to be taken into account when considering asset relief measures and the need for a common and co-ordinated Community approach to asset relief, notably to

[9] See full text on http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:072:0001:0022:EN:PDF

ensure a level playing field" (EC, 2009c, p. 1). The communication details how the European Commission imagine to handle the question of asset relief. It lists "issues such as (i) transparency and disclosure requirements; (ii) burden sharing between the State, shareholders and creditors; (iii) aligning incentives for beneficiaries with public policy objectives; (iv) principles for designing asset relief measures in terms of eligibility, valuation and management of impaired assets; and (v) the relationship between asset relief, other government support measures and the restructuring of banks" (EC, 2009c, p. 1).

Summarizing, Farantouris (2010) proposes that in the future State aid-related amendments should run along three principles. Firstly, he argues that closer co-operation should be form between MSs. He underlines the importance of control in rescue measures. This would improve efficiency of the State aid and intervention. Thirdly, deep competition analysis should initiate aiding activity. This would cover abuse of dominant position issues and merger regulation as well.

Antitrust regulations

In the time of crisis every fields of competition policy is affected but the measure of it is variable. As we have seen in the previous subsection crisis-related State aid regulations are highly sophisticated. In this section we will examine the most important changes in relation to the antitrust regulation.

First of all, to understand the essential feature of crisis antitrust behaviour we have to the take a look on the background and on the logic of it. Antitrust activity (i.e. cartels and abuse of power in dominant position) could be increased during the time of crisis since markets where the affected firms are professing could become narrowed. These markets could be characterized as any other markets of an economy in crisis. However, exposure of sectors is variable due to their characteristics. As Kokkoris (2010, p. 727) says: "Crisis cartels are likely to appear in industries where production facilities are durable and specialized and consumer demand falls due to adverse market conditions." Anyway, antitrust attitude in these circumstances may come to the front, therefore effective antitrust regulation is needed to prevent the free competition from distortions sketched in.

The Commission issued the "Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings"[10] on the 3rd of December 2008. This guidance made no expressed reference on the crisis, but its statements are authoritative in a lot of aspects. It, firstly, "… sets out the main principles of an effects-based approach determining enforcement priorities in relation to Article 82 EC …" (EC, 2009d, p. 6). Secondly, it gives a framework for specific forms of abuse. These handle affairs relating to exclusive dealing, tying and bundling, predation, refusal to supply and margin squeeze (EC, 2009e). However, 2009 and 2010 annual report made no expressive statement on crisis affected antitrust regulation development. In these years establishing of new block exemption in antitrust regulations were being initiated (both vertical and horizontal agreements) (EC, 2010b), and accepted (the vertical block exemption regulation (BER) on the 20th of April 2010, while for the horizontal agreements on the 14th of December 2010). In relation to the BER for vertical agreements the Commission states that "the basic principle of the revised rules remains that companies with limited market power are free to decide how their products are distributed, provided their agreements do not contain price-fixing or other hardcore restrictions. However, the rules were revised in order to take into account both the buyers' and sellers' potential market power so that all parties to the agreement must have a market share under 30% for a block exemption" (EC, 2011b, pp. 14-15). There are several changes in the case of horizontal

[10] See full text:
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:045:0007:0020:EN:PDF

agreements, since "the new rules on horizontal cooperation agreements are much more detailed, user-friendly and clearer than the previous ones" (EC, 2011b, p. 15).

Merger control

According to the Commission's 2008 annual report on competition policy, on the field of merger control a guidance was being accepted (EC, 2009d). The guidance, named Notice and Remedies (22nd of October 2008) was supplemented with the amended Implementation Regulation. As it was underlined in the cases of antitrust, neither at the merger control regulations are expressed reference to the current crisis. However, the reform could be seen as a forward-looking development of the merger control. It could be made out from the summary of the reform. It draws as follows:

> *"The reform imposes more stringent information requirements on merging parties, requiring the notifying parties to systematise the information to be provided. It also clarifies and tightens up the requirements for the sufficient scope of divestitures and for the suitability of purchasers, and explains the application of "up-front buyer" provisions and "fix-it-first" solutions" (EC, 2009d, p. 9).*

There is another explanation of the Commission. The Commission brings merger control to Member States' attention to "distinguish interventions with a protectionist motivation from a genuine pursuit of legitimate public interests" (EC 2010b, p. 30.). For this purpose Article 21 of the EC Merger Regulation is authoritative. The (4) paragraph of Article 21 states that "notwithstanding paragraphs 2 and 3, Member States may take appropriate measures to protect legitimate interests other than those taken into consideration by this Regulation and compatible with the general principles and other provisions of Community law" (EC, 2004).

4. Conclusions

The crisis that has escalated in Europe in the mid-2008 has caused amendments in economic policy concepts in the European Union. Due to this, it was a need for the modernisation of the common competition policy, to adapt it to the challenges the economic crisis meant.

In these circumstances State aid rules played central role. It seemed that, however, Member State interventions overcame common State aid rules guided by the primary law. Therefore the European Commission initiated its supplementing work relating to State aid activity with the clear purpose of keeping in check rescue measures. This was manifesting especially in its communications and guidance. Among the State aid measures special role was dedicated to the rescue of financial sector. This finding is valid since modern (real) economies do not exist without strong financial background. Rescue measures took place in the form recapitalizations or impaired assets rescue as well.

It is an open question how the European Commission will reduce crisis management measures after the crisis. A positive sign from the Institution is the emphasized importance of reduction and avoidance of market distortion and discriminatory measures. Giving up again national sovereignty on the field of State aid would be a lesson for MSs that they had already done one time – in accordance with the Treaty provisions.

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The economic crisis, an opportunity for retailers in Romania

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There is a clear tendency for the Romanian retailing to adapt to the requirements of the international market. If in the years following Romania's adherence to capitalism the indigenous retailing was marked by a strong segmentation in small retail units with low turnover, retail chains were considerably developed. The domestic market began to be penetrated by the first European retail chains in the mid-nineties of the last century. That was the spark of the change, to which many of the players in the retail sector were not able to adapt. During this period one can notice, on the one hand, a decrease in the majority shareholding of state-owned capital in favor of private capital and, on the other hand, a decrease in the value of the public sector and an increase in the value of the private sector.

Romania's accession to the European Union and the removal of customs barriers to the merchandise brought from other member states represented for retailers the long-expected signal of progressive expansion. After going through the stage of consolidation and intra and inter-organizational learning in Bucharest and a few important cities, new subsidiaries were subsequently opened in most of the county towns. Whereas most retailers promised to open a considerable number of subsidiaries in the period of economic expansion, in the last years their activity has been on the decline, being focused mainly on solidifying their own position on the market through mergers or acquisitions as well as exhibiting a central tendency to focus heavily on price and customer attraction.

Based on secondary sources of information, the present paper attempts to make a diagnosis-type analysis of the evolution of the retail market in Romania by highlighting the ways in which the western retail networks were adapted to the Romanian market as well as the strategies resorted to by the local networks in their attempt to overcome the economic crisis and deal successfully with the ever-decreasing income of the customers.

Keywords: retail, crises, retail formats, acquisitions, food and non food retail

1. Review of the retail sector prior to 1990

In the Romanian technical literature, Mariana Drăguşin is the author who highlighted very well the particulars of the retail sector prior to 1990. Therefore (Drăguşin, 1999, pp. 71-73), the retail system was marked by a highly centralized control, making up a closed system composed of big retail enterprises focused exclusively on retail or wholesale retail, with predefined set of activities and rigid, strictly regulated distribution channels which no one was allowed to deviate from.

Wholesale enterprises were directly subordinate to the Ministry of Interior Retail and were organized according to their specialization: 41 Foodstuffs Wholesale Enterprises operating at the level of a single county, 18 Wholesale Enterprises for Textile and Footwear Products and 17 Wholesale Enterprises for Metal and Chemical Products whose area of supply covers between one and three counties.

The retail activity was carried out by means of a limited number of enterprises (14 in Bucharest and 1 up to 5 in each locality), these too being organized according to specialization: State Retail Enterprises for Industrial Goods, State Retail Enterprises for Foodstuffs and Public Food Service and Mixed State Retail Enterprises.

The Ministry of Interior Retail, through the County Retail Directorates, exercised absolute authority in terms of the short, medium and long-term objectives which usually were set according to ideological rather than economic agenda. The price system was kept under strict control, its relative stability being artificially maintained.

The effects of the constraints placed by the central government led to severe distortions between the volume and contents of supply provided by retail enterprises, on the one hand, and those of the demand, on the other hand, thus pushing this discrepancy to a chronic condition in time. We can, therefore, conclude that, prior to 1990, under centralized economic conditions, the retailing, as is currently practiced, missed out the opportunity to be implemented and developed in Romania.

2. Characteristics of the retail sector in the 1990's of the last century

In the period of centralized economy dominated by the image of endless queues formed in front of stores with poor, limited supply, buyers were glad when they were allowed to buy a liter of oil or a few eggs on the basis of their ration card. Nowadays one can notice a reverse situation characterized by the transferal of those queues to the cash registers in supermarkets, hypermarkets and discount stores where consumers wait patiently while carrying their shopping baskets filled with various domestic or foreign products. Obviously they are very satisfied for having been able to choose from among the hundreds of thousands of displayed items.

The period of transition to the market economy had its own distinctive characteristics. As early as 1990, the Romanian market was invaded by a range of cheap, low-quality products which, at that time, managed to satisfy people's "hunger" for shopping and buying anything that was new on the market. The market was disorganized and lacked any structure. Retail enterprises had to deal with an unstable economic environment, rising inflation and variations in the exchange rates.

The period from 1990 to 1994 may be considered as one characterized by a great boom in the number of private enterprises of **various dimensions. After 1995, when the payment facilities for the income tax were eliminated, the boom began to slow down** (Drăguşin, 1999, pp. 71-73).

Radical changes took place in the retail sector. The number of stores increased considerably, doubling within ten years. During this period boutiques and other small shops were the premainly forms of retailing. This proliferation of stores is mainly due to the fact that the inauguration and development of this business model requires much lower amounts of capital than the expansion in the production process.

In addition to the appearance of privately-owned enterprises, the state-owned enterprises were gradually divided into private enterprises. The retail sector practically became a private sector as early as 1998—95% of the actual sales to the final consumer was achieved by private enterprises. As shown in Table 1, 2002 may be regarded as the year since the entire retail sector has been operated by private entities as the state entities became insignificant. In fact, there has been a sharp decrease in the number of public retail units in the last reporting years (Romania's Statistical Yearbook 2006). Therefore, we believe that, in comparison to other economic sectors, the retail sector underwent the fastest privatisation process.

This period was the witness of an increased reduction in the number of small-sized stores (up to 120 square meters) determined by the merger of various retail enterprises, the intense competition from the big retail chains which began to appear on the Romanian market and the declining profitability of the

businesses on the Romanian market because of the sharply rising overhead costs and rents for the commercial space in central areas of localities. It was only between 2003 and 2004 that the percentage of space occupied by such stores decreased by almost 2% (Romania's Statistical Yearbook, 2007).

Table 1: Retail sector according to types of ownership

	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2009**
Total	12.551	21.357	36.270	57.148	84.193	118.183	108.515
State majority shareholding	578	482	485	388	553	39	30
Private majority shareholding	11.973	20.875	35.784	56.760	83.640	118.144	108.485
Private (%)	**95%**	**98%**	**99%**	**99%**	**99%**	**99%**	**99%**

Excluding the sale, maintenance and repairing of cars, motorcycles and the retailing of (motor) fuels.
Source: Romania's Statistical Yearbook, 2010, p. 482.

This period also witnessed an increase in the number of retail units of large sales area such as supermarkets or hypermarkets. Whereas the percentage of Romanian consumers who went shopping to hypermarkets, supermarkets and cash & carry stores was only 9% in 2001, it rose to over 30% in 2008 (The magazine *Romania Top 100 companies*, 2006, p. 130) with an increasing trend over the ensuing years. According to specialists, our country is on a par with other European states in this respect, the only difference being the ten year gap that places Romania's experience "behind" that of the EU countries. Over the last years, a significant increase in the number of supermarkets, discount units and proximity stores has been noticed to the detriment of large area units.

3. Appearance and development of modern retail formats in Romania

The supermarket was the first type of "western" store that appeared on the Romanian market after 1989. The Romanian retail market began to catch the interest of the European retail networks as early as the middle of the nineties when the supermarket chain La Fourmi, founded in 1991, penetrated the market, followed by the opening of the Mega Image units in 1994. Two years later, the Romanian market is penetrated by the Metro group under the cash & carry format. After a pronounced quantitative increase in the 1990's, the beginning of the twenty first century heralded the start of the qualitative changes. Likewise, the other forms of modern retail made their appearance on the Romanian market: the malls (1999), discount stores (2000), hypermarkets (2001) and the specialty stores (2002).

3.1. Foreign food retail formats

Viewed as the pioneer of the retail expansion in Romania and the largest retail group in Europe, over 50% of the combined turnover of the German group Metro is recorded by its outlets and branches located in 30 states on two continents (*Metro Handelslexikon 2010/2011*, pp. 88-89). Metro got into the Romanian market in 1996 (Mihai, 2005) thus creating a "bridgehead" in Romania's capital and managing to inaugurate 32 branches over the thirteen years of development. Ten years later, Metro also brought to Romania the hypermarket network Real which currently number 25 units.

During all these years Metro got attention through its assortment variety, friendly service, the possibility to park the car in the outside area of the unit or the comfortable atmosphere in the store. For many years Metro provided for the Romanian consumer a viable retail "alternative" to the proximity store (convenience or "ABC" store) whose supply was not always of the highest quality. The latter type of retail units often marketed a limited assortment and pursued a price policy which did not suit the pocket of the ordinary Romanian people undergoing the "transition" process. It is likely that this

very reputation contributed to Metro Romania recording a turnover of over EUR 1 billion starting with 2004 (*Despre Metro*, 2010). Driven by the desire to meet the domestic consumers' expectations and particularly owing to a careful expansionist policy, in 2010 the cash & carry Metro network decided to inaugurate a new retail format destined to serve the entrepreneurs—Metro Punct. These units are placed in small towns or in areas with a population of about 100,000 inhabitants. Notwithstanding this aspect, the units provide the same range of assortments and the same services. Currently Metro Punct owns six stores (See Table 2).

As they became aware of the potential of the Romanian market, other European retailers focused their attention on Romania. The German group Rewe penetrated the Romanian market under the Selgros brand with the cash & carry segment (in 2001), under the Billa brand with supermarkets (in 1999) and under the Penny and Penny XXL in the sector of the discount units (in 2005). Carrefour came to Romania as early as 2000 but only preferred the capital as the only place where to inaugurate the hypermarket format. It was no earlier than 2007 that Carrefour Romania, when it purchased the Artima chain, began to reveal its presence on the market through the Carrefour Market supermarkets. It is possible that the French group will also implement the proximity store format in the future. Carrefour group has lately gone into partnership with the Angst company the result of which was the launch on the Romanian market of the Carrefour Express franchise (proximity stores). Four stores were opened in Bucharest under the Carrefour Express brand, followed by other stores within a short period of time.

Cora (Louis Delhaize) and Auchan hypermarkets first focused their attention solely on Bucharest and only much later did they recognize the potential of the other cities in the country. An expansionist strategy was also pursued by the German group Tengelmann through the Plus discount units. In 2011 these units were sold to the Lidl/Schwarz concern and the former stores were renamed with the Lidl brand. By 2011 Kaufland was the only retail network owned by the German group Lidl/Schwarz. The relatively small area occupied by these units (in comparison with that of hypermarkets), the expansionist strategy (40 units in 2008, 55 in 2009, 60 in 2010 and 70 in 2011) as well as their location in the middle of urban conglomerations (quarters) turn these units into a category killer as they provide a great number of articles for a vast area of people at highly attractive prices.

Other retailers are certain to come on the Romanian market. In our opinion, the big absentees on the domestic market are the American group Wal-Mart, the undisputed leader of the worldwide retail, Tesco group (Great Britain) and the German groups Aldi-Nord and Aldi Sud (hard-discount).

Table 2 provides a general overview of the most important European retailers operating on the Romanian market by the end of 2011. It contains the retail formats, the country of origin and the year of their entry to Romania, the turnover recorded in 2010, the number of opened stores and other issues related to location, area, and number of articles, assortment structure or the price level.

Table 2: Food retail formats in 2011

Retail chain	Retail format	Country of origin, Year of entry	Turnover (mil. EUR)	Nr. stores (2011)	Nr. employees	Characteristics
Mega Image (Delhaize B)	Supermarket	Belgium, 1994, 2000	198,33	98	3.000	Proximity, 1.000-1.500 m2, 3.500-5.000 articles, food, high price level
Shop&Go (Delhaize B)	Proximity			9		Proximity, 100 – 200 m2, 2.000 articles, food, high price level

Retail chain	Retail format	Country of origin, Year of entry	Turnover (mil. EUR)	Nr. stores (2011)	Nr. employees	Characteristics
Metro C&C (Metro Group)	Cash & Carry	Germany, 1996	1.254,76	32	5.700	Outside town, 7.500 m2, 37.500 articles, mainly food, middle price level
Real (Metro Group)	Hypermarket	Germany, 2006	780,95	25	8.000	Outside town, 6.100-7.400 m2, 37.000-40.000 articles, food/non-food, middle price level
Billa (Eurobilla, REWE Group)	Supermarket	Austria, 1999	271,43	61	2.800	Proximity, 1.500-3.500 m2, 4.000-7.500 articles, mainly food, high price level
Interex (Intermarche)	Supermarket	France, 1999	57,14	12	530	Proximity, 1.000-2.500 m2, 8.000-12.000 articles, mainly food, high price level
Profi (investitori)	Supermarket	France, 1999	146,67	108	1.700	Proximity, 500-1.000 m2, 3.000-5.000 articles, mainly food, low price level
Carrefour	Hypermarket	France, 2000	930,95	25	7.123	Car accessible, 8.500-13.000 m2, 33.000-50.000 articles, food/non-food, middle price level
Carrefour Market	Supermarket	2007	95,24	45	1.000	Proximity, 1.200-1.500 m2, up to 7.000 articles, 1.000 own label, mainly food, high price level
Carrefour Express	Proximity	2010, Partnership Angst	-	3	100	Proximity, 100-500 m2, 1.000 – 4.000 articles, mainly food, high price level
Selgros (Trans Gourmet Holding)	Cash & Carry	Switzerland, 2001	764,29	19	4.300	Outside town, 9.000-10.000 m2, up to 42.000 articles, food/non-food, middle price level
Penny Market XXL (REWE)	Discounter	Germany, 2001	385,24	6	2.100	Proximity, 2.500 m2, 6.000-10.000 articles, mainly food, middle price level
Penny (REWE Group)		Germany, 2005		128		Proximity, 750-1.000 m2, 1.300-1.400 articles, food, middle price level
CBA (CBA Com Rom)	Proximity	Hungary, 2002	64,29	366	d.u.	Proximity, different names, under 100 – 300 m2, 500 – 1.000 articles, mainly food, high price level

Retail chain	Retail format	Country of origin, Year of entry	Turnover (mil. EUR)	Nr. stores (2011)	Nr. employees	Characteristics
Cora (Louis Delhaize, F)	Hypermarket	France, 2003	326,19	8	2.660	Car accessible, 9.000-11.000 m2, 50.000-65.000 articles, food/non-food, low price level
Kaufland (Lidl/Schwarz Group)	Supermarket	Germania, 2005	1.111,90	70	9.993	Proximity, 4.500-8.000 m2, 12.000-15.000 articles, mainly food, low price level
Spar	Supermarket	Holland, 2005	9,52	2 (4)	200	Proximity, 300-1.000 m2, 9.000-10.000 articles, 50% food 50% non-food, high price level
Auchan	Hypermarket	France, 2006	354,76	9	3.200	Proximity / car accessible, 8.500-12.500 m2, 45.000-50.000 articles, food/non-food, middle price level
Lidl (ex-Plus)	Discount	2008	345,24	129	2.000	Proximity, 900-1.000 m2, 1.500 articles, mainly food, low price level

d.u. = unavailable data;
Source: IGD, M&M EURO Data, personal research, articles from Piaţa – Revista Bunurilor de Larg Consum, Wall-Street Journal and the companies' websites

As soon as Romania's accession to the European Union became imminent, competition became more and more intense and, as a consequence, the first years of the twenty first century saw the beginning of the substantial expansion of the modern retail formats. Following the stages of consolidation and inter- and intraorganizational learning in Bucharest and other big municipalities, new branches were opened in most of the county towns. Although the small towns were not overlooked, the expansion strategy of the retail networks paid particular attention to the size of the locality. Thus, the hypermarkets and the two cash & carry networks (Metro and Selgros) focused on localities of over 100,000 inhabitants whereas the smaller towns were „entrusted" to supermarkets and discount units.

Although the inauguration of a new establishment involved significant investments—up to 50% of its total costs (depending on area and size), the expansion strategy of the retail formats also involved the inauguration of logistics and acquisition centres the purpose of which was to maintain the flow of articles to their own locations (*Top 100 companies*, 2006, p. 129).

Retail formats also resorted to various *territorial expansion strategies*. These strategies varied according to the retail format being used, the necessary area, the attractiveness of the location or the number of visitors (good custom). As of 2006 the discount networks Plus (currently Lidl) and Profi and the Spar supermarket have been among the stores that expanded their market presence in smaller towns of less than 100.000 inhabitants. An example of this expansion is Hateg, the smallest town in Romania being penetrated by a retail network, with a population of about 12.000 inhabitants. The retail networks wishing to expand their business in smaller localities count on several competitive advantages such as lower prices for the products of their own stores as against those of the independent stores, the relatively wide and complete assortment, the image and awareness they enjoy as well as some special offers meant to attract and win the loyalty of the buyers.

In terms of the "bridgehead" city chosen for the market expansion, some notable differences may be noticed from one retail network to another. Until quite recently companies used Bucharest as a gate to make their entry on the Romanian market. Later they began to start their expansion from other cities as well. Selgros and Baumax opened their first store in Brasov, Profi and Real chose Timisoara, and Spar also decided on a city in the western part of the country, namely, Arad. The closeness to the western border, the proximity of the supply networks and the rising living standard were among the reason that determined many companies to set up their headquarters in the western areas of the country. Some discount stores, such as Minimax Discount, also preferred small localities as gates to enter the market such as Slatina, Targoviste and Urziceni (in 2004). In 2008 they opened another store in Campia Turzii (Retail, 2006).

3.2. Domestic food retail formats

The western European retail networks were not the only retail enterprises that influenced the Romanian market and its buyers. There were also some local initiatives that distinguished themselves when the market opened during the 1990's of the last century. Notwithstanding the public's immediate acceptance of the local retail networks, the fund providers' lack of experience, their decisions to diversify the activity portfolio (often focusing not only on the retail but also on other strategic activities), the failure to suit the consumer preferences and provide a plentiful supply at all times and the overestimate of the expansion capacity led some of the retail networks to ride "the crest of the wave" for only several years. Some promising retail networks such as Trident, Ethis or Pic, veritable "stars" of the domestic retail that heralded one inauguration after another have now become a thing of the past.

Furthermore, these retail networks that only opened supermarkets at first, instead of consolidating their expansion at the height of their success, they announced the opening of new retail formats—hypermarkets and even commercial centers (as in the case of Trident). Other retail networks were timely sold (Artima to Carrefour, Albinuta to Profi) for lack of a clear strategic vision and financial resources or because of the owner's desire to mark profit. Table 3 provides an overview of the main retail networks that "survived" the economic crisis. Due to the large number of such networks, we only took into account those networks that recorded an over 10 million lei turnover (about EUR 2.5 million) and owned over 10 branches in 2010.

Table 3: Active networks operating in the food retail with Romanian majority shareholding

Retail chain	Year of entry	Turnover (mil. euro)	Nr. stores	Main characteristics
ABC, Discount (Comaliment)	Bihor, 1990	3,47	15	Proximity, under 500 m2, under 1.000 de articles
Alba Market / Elit (Retail Alba Com)	Alba-Iulia, 2010	1,11	13	Proximity, 200 – 500 m2, 3.000 – 5.000 articles
Angst	Ilfov, 1993	38,57	26	Proximity, under 500 m2, less than 1.000 de articles, rebranded as Carrefour Express
Agricola (Agricola International)	Bacău, 1993	12,07	59	Proximity, 6.000 – 9.000 articles, 200 – 400 m2
Annabella	Vâlcea, 1994	39,57	37	Cca. 600 employees , Proximity, 1.000 articles, 100 – 800 m2

Retail chain	Year of entry	Turnover (mil. euro)	Nr. stores	Main characteristics
Alfa Beta	Constanţa, 1991	16,62	4	Proximity
Barta	Satu Mare, 1994	11,42	5	Proximity
Berlin	Vaslui, 1994	12,05	5	Proximity
Bertis	Covasna, 1992	17,19	4	Proximity
CrisTim	Bucureşti, 1994	17,10	30	Proximity
Diana	Vâlcea, 2002	14,75	26	Proximity
Dobrogea Fresh	Constanţa, 2003	6,01	21	Proximity
Economic, Stop Shop (Aliment Murfatlar)	Constanţa 1991	5,76	12	Proximity
Luca	Braşov, 1991	6,76	18	Proximity, under 500 m2, under 1.000 de articles
Marele Alb	Cluj, 1994	3,79	20	Proximity
Mecom	Buzău, 1992	3,76	10	Proximity
Mic.ro (Mercadia)	Bucureşti / Olanda 2011	78,36	830	Proximity under 500 m2 (720 fixe stores şi 110 mobile stores), supermarkets with fresh vegetable market (500 – 1.000 m2), less than 1.000 articles, about 4.000 articles, mainly food, Romanian articles (90%), mainly low prices, but also high prices for a few articles
Macro, miniMax (Mercadia)			58	
Oncos (Oncos Impex)	Cluj, 1993	21,69	26	Supermarkets, 500-1.300 m2, 1.500 articles, mainly food, high price level
Proinvest	Teleorman, 1991	10,83	3	Proximity
Succes (Succes Nic Com)	Gorj	29,43	47	Over 1.000 de employees, 200 – 900 mp, 2.500 – 7.000 articles
Trei G (Trei G Retail)	Oradea	27,36	8	Proximity
Trident (Trident Trans Tex)	Sibiu, 2004	14,48	4	Supermarkets, 800-2.500 m2
Unicarm	Satu Mare	60,33	75	Supermarkets, 500-1.300 m2, 1.500 articles, mainly food, high price level
Vel Pitar (Broadhurst Investments Ltd)	Bucureşti, 2000	14,18	100	Proximity, less than 500 m2, less than 1.000 de articles
Universal	Sălaj	1,36	13	Proximity

Source: Articles from the magazine "Piata – Revista Bunurilor de Larg Consum", Wall-Street Journal and the companies' websites and the Database of the Romanian Finance Ministry.

As evidenced by the above table, all these retail networks operate only two retail formats: proximity stores and supermarkets. Most of them are small-sized stores, providing a not too wide range of articles. It is very likely, however, that their trump card against hypermarkets is represented by assisted selling and specialist advice on the part of the personnel.

3.3. Non-food retail formats

In addition to the food retail formats, the Romanian market also comprises those formats that market non-food products. The most important DIY, electronics, furniture and drugstore retail networks are presented in Table 4. Obviously, an important feature in the expansion of the specialized (non-food) retail chains is represented by the inauguration of commercial centers of different dimensions where such units are preponderantly "accommodated" as well as the existence of very large food stores which act as "anchors" for the non-food retailers (they attract customers).

Table 4: Non-food retail networks

Retail chain	Retail format	Country of origin, year of entry	Turnover (mil €)	Nr. stores (2011)	Nr. employees	Main characteristics
Ambient	furniture	Sibiu, 1993	107,95	12	1.300	30.000 m2
Hornbach	furniture	Germany	3,07	4	426	22.000 m2
Ikea	furniture	Sweden, 2007	15,03	1	429	9.500 m2
Interhome	furniture	Belgium, 2005	10	5	300	3.000 – 10.000 m2
Mobexpert	furniture	1993	110	32	2.200	6.000 – 16.000 m2
Kika	furniture	Austria, 2008	11,5	1	128	27.000 m2, 50.000 articles
Neoset	furniture	Greece, 1991	1,954	6	50	Min. 400 m2
Lemet	furniture	1991	34	108	1.250	500 – 600 m2
Arabesque	DIY	Romania, 1994	355	18	4.200	39.000 m2
Baumaxx	DIY	Austria, 2006	132,27	14	1.700	15.000 m2
Bricostore	DIY	France, 2002	148	15	1.700	+1 2011, 7.500 m2
Dedeman	DIY	1992 Bacău	369,9	26	5.000	+ 8 2011, 11.000 – 15.000 m2
Leroy Merlin	DIY	Bucharest, 2011	0,003	1	250	16.000 – 17.000 m2
Mr. Bricolage	DIY	2006	17,19	3	1	6.000 – 10.000 m2, 40.000 articles
Obi	DIY	2008	39,31	7	542	Cities, 8.000 – 10.000 m2
Praktiker	DIY	Germany, 2002	197,2	27	2.600	4.300 mp-8.500 m2, 40.000 articles
DM	Drug-store	Germany, 2007	13,5	43 (50)	Sub 300	Proximity, 250 – 500 m2, 12.000 articles
Altex	Electro-nics	1994	195	89	1.500	1.500 – 2.000 m2, 12.000 articles
Domo	Electro-nics	Romania, 1994	180	127	1.650	Investment 250.000 euro, 1.200 m2
Techno-markt		2007		7		1600 m2
Flanco / Flanco World	Electro-nics	1992	100	77	870	500-1.000 m2, 14 new stores in 2011, 30.000 articles,
Media Galaxy	Electro-nics	2004	with Altex	13	1.000	10.000-30.000 articles, 2.000-3.000 m2,

d.u. – unavailable data

Source: Articles from the magazine "Piata—Revista Bunurilor de Larg Consum", Wall-Street Journal and the companies' websites., www.mfinante.ro

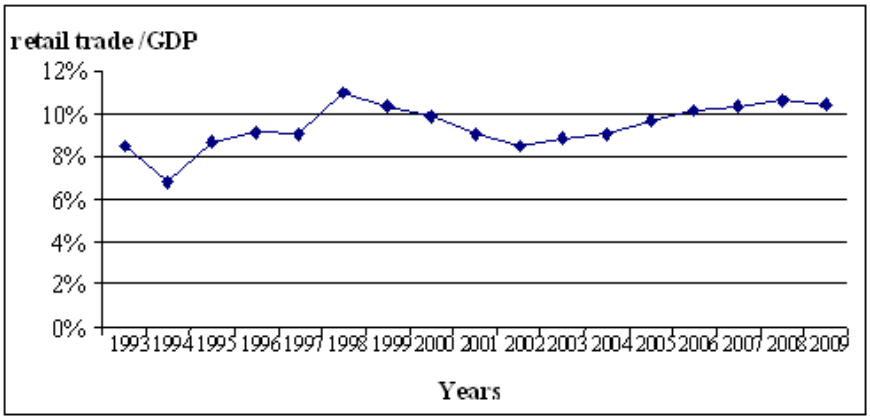
4. Retailing according to statistics

The changes in the retail sector are also reflected in the statistical data of the last twenty years. Much circumspection is required when interpreting statistical data up to the year 2000 because the data included hotel and restaurant activities as well. Moreover, in some instances, the term "retail" referred not only to the retailing but also to the wholesale retail and the repairs and maintenance of vehicles and household appliances.

4.1. Retail gross domestic product

The relationship between retailing and economic development may be represented by means of an inverted U-shaped curve of a function (Tachiciu, 2003, p.128.). Starting from this hypothesis and from the fact that the Romanian retail sector undergoes rapid development, we may forecast that there are medium-term perspectives of increase in the contribution of the Romanian retail sector to the gross domestic product (Figure 1).

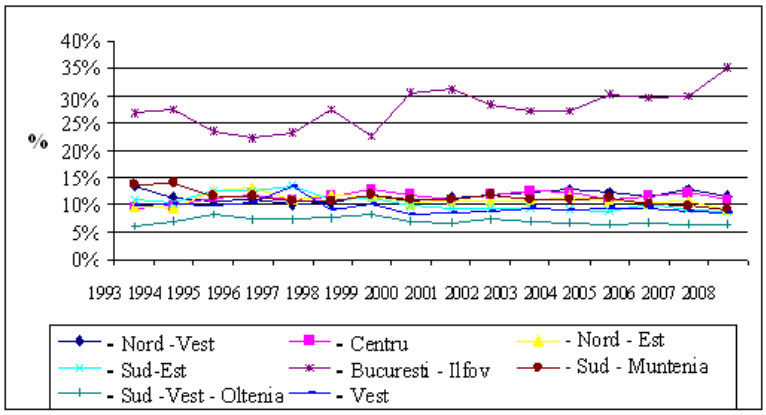
Figure 1: Evolution of the share of the retail sector in the gross domestic product



Source: Romania's Statistical Yearbook (2010, p. 323)

The contribution of the Bucharest Development Region to the overall retail sector was and is significant for the period under analysis, reaching up to 35% in 2008 when the economic crisis began. It is followed by the North-West Development Region with a maximum contribution of 12% in 2008. The South-West Development Region stands out as the region with the smallest contribution to the overall retail sector, only 6% in 2008 (Figure 2).

Figure 2: The share of each region in the overall national retail sector



Source: Tempo online (2011a)

4.2. Retail turnover

During the economic crisis the retail turnover was in decline by 5% for the wholesale retail and by 3% for the retailing.

Table 5: Turnover of enterprises having retail as main activity (millions of lei in current prices)

	2008	2009	2010
Wholesale turnover	220.690	203.733	210.409
Retail turnover	118.183	108.515	114.962

Source: Romania's Statistical Yearbook (2010, p. 482; 2011, p. 504)

The retail market is fragmented among multiple actors. A more pronounced fragmentation is manifest in the case of the wholesale retail. In 2010 the combined turnover of the top five wholesale enterprises was 5.6% of the overall market and 10.9% for the top twenty. A greater concentration may be noticed in the case of the retail. The turnover of the top five actors represents 15.7% of the total retail market and 32.7% for the top twenty (Table 6). A tendency towards increasing concentration may be noticed in 2010 as compared with the previous year.

Table 6: Concentration of the retail market

Turnover	2009	2009	2010	2010
	Top 5	Top 20	Top 5	Top 20
Wholesale retail	5%	10,3%	5,6%	10,9%
Retail	14,7%	30,9%	15,7%	32,7%

Source: Romania's Statistical Yearbook (2010, p. 463; 2011, p. 484)

4.3. Active retail units, merchandise groups

The percentage of active retail units of all active units decreased gradually from 69% in 1998 to 40% in 2008. In other words, as Table 7 indicates, the number of active retail units did not increase proportionally with the overall number of active units. These data support the hypothesis according to which the retail sector has underwent a quantitative development in the 1990's followed by a qualitative development in the early years of the new millennium.

As a result of the effects of the economic crisis, the number of active units throughout the country decreased by 2.8% whereas the active retail units decreased by 7.7%. The retail units were hit by the crisis to a larger extent than the overall number of units at country level. One year later, the economy, as a whole, was affected more seriously than the retail sector. Therefore, the number of active enterprises at country level decreased by 11% whereas the retail companies by only 9%. Thus, we may conclude that the effect of the crisis became more profound in 2010.

Table 7: Active retail units versus the total number of active units at country level

	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2009**	**2010**
Romania	323.790	313.508	322.188	404.339	471.952	534.525	519.441	470080
Retail sector	224.287	205.185	181.388	196.222	211.628	214.137	197.611	181903
%	69%	65%	56%	49%	45%	40%	38%	39%

Statistical data refer to wholesale and retail, repairs and maintenance of vehicles, motorcycles and personal and household goods.

Source: Territorial Statistical Yearbook (2006), Statistical Yearbook (2010, p. 466).

Whereas the number of proximity stores (with an area of up to 120 sqm) increased by about 10% between 2003 and 2006, the economic crisis brought about a significant decline in their number. It was upon this type of units that the decrease in the consumers' purchasing power had the most significant bearing with the result that their sales went down and the stores had to be closed down. Because of the higher prices being charged, many individuals preferred to avoid these units and turned to discounters for shopping.

This surmise seems to be confirmed by the statistical data presented in Table 8. As we previously highlighted in Table 2, the area of discount stores ranges between about 1,000 sqm (Lidl, Penny) and 2500 sqm (Penny XXL). Between 2003 and 2006 one can notice a significant increase (54%) in the number of stores with areas between 400 and 999 sqm, their number decreasing considerably during the crisis period (2008-2009). If this situation appears contradictory at first sight, we believe, however, that it is fairly logical. The 400 to 999 sqm category comprises not only discount units but also supermarkets.

Table 8: Evolution of the number of stores according to area categories

Areas	2003	2004	2006	% 2006 as compared to 2003	2008	2009	% 2009 as compared to 2006
Total	135.072	135.003	148.902	10,2%	134.878	132.856	-10,8%
Up to 120 sqm	127.486	124.727	140.909	10,5%	128.290	125.128	-11,2%
121-399 sqm	5.942	8.795	5.799	-2,4%	5.020	5.868	1,2%
400-999 sqm	1.177	1.119	1.817	54,4%	976	1.189	-34,6%
1.000-2.499 sqm	387	252	242	-37,5%	373	406	67,8%
2.500-4.999 sqm	38	70	67	76,3%	94	110	64,2%
5.000-9.999 sqm	33	25	52	57,6%	92	114	119,2%
10.000 sqm and up	9	15	16	77,8%	33	41	156,3%

The statistical data contain information from enterprises with retail activities
Source: Statistic Yearbook (2007, p. 730; 2010, p. 575).

4.4. Retail investments

As Table 9 shows, in 2003 the retail investments index was higher than the investments index at the country level. At that time retail investments only represented 14% of the overall national investments, up on the previous year when they were only 11%. This is mainly due to the rapid expansion of new retail formats. The main investors on the Romanian retail market are the German networks Metro, Rewe, Tengelmann, and Lidl/Kaufland, followed by the French networks Carrefour, Auchan, Intermarche or Bricostore and the Belgian group Delhaize.

In 2009, the first year of crisis, retail investments declined in comparison with the previous years, representing only 12% of all investments at country level, with further decline to as little as 9% in 2010.

Table 9: the national economy's net investments according to activities (in millions of RON current prices)

	2000	2002	2003	2004	2006	2008	2009	2010
Total	12.499	27.173	35.651	42.111	68.828	99.526	74.939,3	72294,7
Retail	1.387	3.023	4.902	6.181	10.002	14.438	8.974,7	6840,9
Percentage	11%	11%	14%	15%	15%	15%	12%	9%

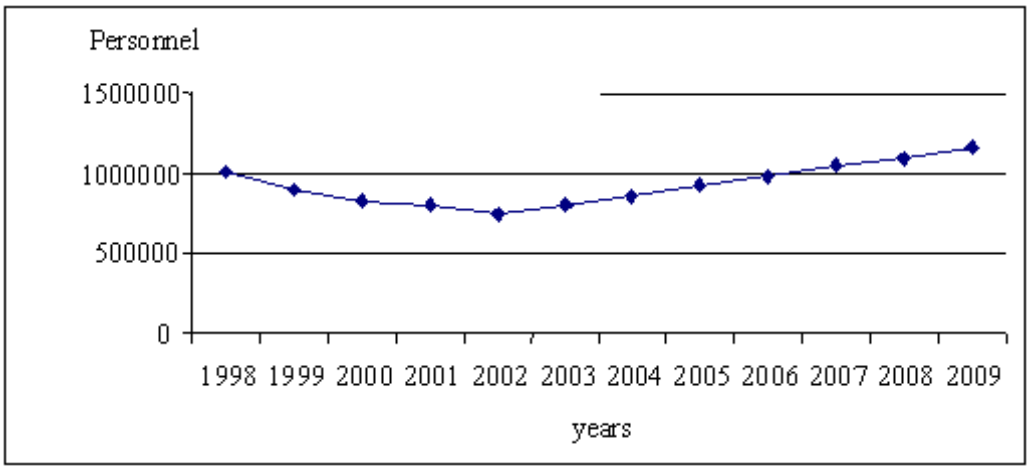
Source: Statistical database: Tempo Online, Tempo_INV101C_9_4_2012_1, available at www.insse.ro, retrieved May 2011, Romania's Statistical Yearbook (2011, p. 378).

4.5. Employed personnel

The investments made in retailing contributed to creating employment for a large number of people. As Table 10 highlights, between 2002 and 2006 the employed personnel in the retail sector increased by 31% and by only 6% in 2008 as compared to 2009 during the economic crisis. In the last years the big retail chains have been the top employment providers mainly as an effect of the territorial expansion. Thus, 6,000 people were employed in 2006 by all retail networks operating at the moment only for the number to exceed 15,000 in 2007. Whereas the forecasts issued before the economic crisis pointed to over 40,000 jobs being created in 2008, things stood differently afterwards.[1] Furthermore, once new information technologies were implemented to handle merchandise, the percentage of IT specialists increased in comparison with the traditional retail occupations (cashier, shop-assistant, and administrator).

According to the statistical data presented in Figure 3, the economic crisis did not bring about massive layoffs. Although this fact poses something of a paradox, particularly in light of resounding bankruptcies and the great number of units being closed, we believe these data to be accurate concerning the retail sector as a whole because the big networks continued their expansionist activity, some of them even reporting considerable profits.

Figure 3: Evolution of the retail personnel between 1998 and 2009



The analysis of the structure of the retail workforce in comparison with that of the entire economy according to sex and age groups for 2006 reveals that the number of women is by 11% greater in the retail sector than the total number of women employed at national level. At the same time, one can notice the high percentage of young people employed in retailing (Table 10). Therefore, we appreciate the significant role played by the retail sector in absorbing vulnerable social categories such as the youth and women as it also creates the possibility of working part-time.

[1] Ziarul Financiar, 2008, "Retail-ul va 'inghiti' 40000 de oameni"/Retailing will "swallow" 40,000 people, January 8.

Table 10: Structure of population employed in retailing according to age groups in 2009

	Age groups %							
	Total persons (thousands)	**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65 şi peste**	**% women of the total**
Total	9243	8,1	26,8	27,7	21,3	11,4	4,7	44,8
Retailing	1157	11,4	36,3	30,2	17,5	4,4	0,2	54

Source: Romania's Statistical Yearbook (2010, p. 96).

4.6. Remuneration in the retail sector

In 2008 and 2009 the average nominal net monthly salary at country level increased by almost 4%, up to 1,361 lei in 2010 in the context of budgetary salary cuts by 25%. As regards the retail sector, the salary increase was insignificant, only by 0.67%, from 1,040 to 1,047 lei. Retailing is one of the economic sectors that offer the lowest remuneration to their employees. With the exception of employees in agriculture (hunting), hotels and restaurants, fishing and fish farming, the employees of the other sectors were better remunerated than the retail employees. Benchmarked against the average salary, men's salary was by 10% higher whereas women's salary was by 10% lower. We notice a slight narrowing of the gender salary gap. At the same time, there is a tendency towards growing salary gaps between the country's capital, Bucharest, and the other cities (Romania's Statistical Yearbook 2010, p. 150).

5. Strategic moves on the retail market during the crisis period

The economic crisis acted as a stimulus for the retail networks operating on the Romanian market to rethink their strategy in order to process and better approach the Romanian market. In fact, the period preceding the economic crisis was characterized by an aggressive expansionist policy whereby the retailers' own networks were developed through the branch-opening strategy as well as through acquisitions. Without any regard to costs and financial possibilities, the retail networks rushed into inauguration after inauguration of new branches and into the "swallowing" of the small local networks. 2008 and 2009 brought about a setback in the acquisition of local retail networks, a slight recovery of the acquisition phenomenon being recorded in 2010 and 2011.

5.1. Acquisitions

The retail networks operating on the Romanian market switched from the aggressive expansion promoted prior to experiencing the effects of the economic crisis to a cautious approach to market processing characterized mainly by the small steps policy. In fact, the crisis contributed to the "drainage" of the retail market. Only the networks that experienced a solid increase up to the crisis period managed to cope with the decrease in cash flow, sales and turnover as well as with the process of consumer reorientation towards articles that are absolutely necessary.

Mergers and acquisitions represent for retailers another possibility to increase their business. Retailers resort to this practice to access resources, increase their market power through profit maximization or the increase of the market share, diversify their activity, expand the distribution network (takeover of competitors) or to profitably integrate a competing retail format into their own network and rebrand it (Liebmann, Swoboda, 2008, pp. 246-255). Branch opening is thought of as the most important horizontal, integrative and dynamic strategy in retailing for the reason that it contributes to the inauguration of self-constructed new locations. By using their own resources and competences,

retailers multiply a pre-established concept, impose uniformity upon the merchandise management and perform a more effective audit/evaluation of the proposed activities. The technical literature asserts that branch opening boosts a retailer's business when it owns at least five branches in different locations (Zentes, Ferring, Janz, 2001, p. 676).

As Table 11 reveals, the years 2006 and 2007 witnessed a flood of acquisitions made by domestic retail networks (Angst, Artima, Gima, Oncos etc) and particularly by foreign ones (Billa, Carrefour, Profi or Spar) in order to strengthen their market positioning. The following were by far the most important "moves" on the market: the selling of the 9 Albinuta stores to Profi, the acquisition of the Artima network (21 stores) by Carrefour and the change of the units into Carrefour Market supermarkets.

Table 11: Acquisition of stores in the Romanian retailing—2006 and 2007

Year of acquisition	Bought retail chain	Location	Nr. stores	Buyer (Chain)	Value	Surface store (m2)
2006	Diskont	Alba-Iulia	3	Spar (Olanda)	d.u.	1.200
2006	Hofer	Baia-Mare	2	Billa	d.u.	1.000-2.500
2006	Avantaj	Râmnicu Vâlcea	2	Artima	2,5 mil. €	1.000
2006	Lotus	Oradea	1		d.u.	1.800
2006	The Best	Bucharest	3	La Fourmi	d.u.	250 – 600
2006	Univers'all	Târnăveni	1	Profi	0,7 mil. €	673
2007		Constanţa	4		d.u.	250
2007	Mara	Focşani	1	Penny	d.u.	under 500
2007	Mara	Focşani	1	G'Market	d.u.	under 500
2007	Albinuţa[1]	Bucharest	9	Profi	8 mil. €	400
2007	Etti	Timişoara	1	Nova Tim	d.u.	900
2007	Flora	Cluj-Napoca	3	Oncos	d.u.	230
2007	Proban	Bucharest	1	Ethos	d.u.	150
2007	Discovery	Cluj-Napoca	8	Angst	d.u.	150
2007	--		1		d.u.	500
2007	Florelia	Oradea	3		d.u.	under 500
2007	Univers'all	Sibiu	1	Interex	4 mil. €	1.865
2007		Iaşi	1	Gima	0,15 mil. €	1.200
2007		Bucharest	1	Carrefour	d.u.	3.600
2007	New Planet	Curtea de Argeş	2	Isdum	d.u.	550 – 660
2007	Artima	Various cities	21	Carrefour	55 mil. €	1.000

[1] Artima network was owned by a Lithuanian investment fund (Maxima Lituania) and later sold to the Belgian group Delhaize, which operates the Profi discount stores;

d.u. – unavailable data;

Sources: Roşca (2011a-b), Popescu (2009), Other articles in Piaţa – Revista Bunurilor de Larg Consum, Wall-Street Journal and the companies' websites.

Since 2008 not only the acquisition phenomenon has been diminished but also the competition landscape has been reshaped to some extent. Thus, only the retail networks featuring a good financial status managed to cope with the economic crisis and go quite successfully through this period marked by uncertainty in consumption. Their small number notwithstanding, the transactions that were carried out in 2008 and 2009 were highly significant—Mega Image took over the 14 La Fourmi stores in Bucharest for EUR 12 million and invested another EUR 3.5 million in their reorganization and adaptation to its own retail format (Table 14).

Table 12: Acquisition of stores in the Romanian retailing—2008 and 2009

Year of acquisition	Bought retail chain	Location	Nr. stores	Buyer (Chain)	Value	Surface store (m2)
2008	La Fourmi	Bucharest	14	Mega Image (Delhaize B.)	12 mil. € / 3,5 mil. €	250 – 600
2009	Prodas (Mielan Comimpex)	Bucharest	4	Mega Image (Delhaize B.)	5 mil. €	400 – 750
2009	Profi (Delhaize)	Various cities	65	Profi	66 mil. €	500-1.000

u.d.—unavailable data;

Sources: Roşca (2011a-b), Popescu (2009), Other articles in Piaţa – Revista Bunurilor de Larg Consum, Wall-Street Journal and the companies' websites.

As proof that the effects of the crisis were also felt in other lands, the Profi network, previously owned by the Belgian group Delhaize, was sold in 2009 to a Polish investment fund (Poland Enterprise Investor). The new owner kept the name of the store unchanged but modified the operated retail format. Thus, the former Profi discount stores became small-sized supermarkets.

The unfortunate effect of the economic crisis exhibited particularly in the decline of credit facilities and consumer purchases signaled the entrance into payment default for some local food retail networks, their management having to declare them insolvent. For instance, the Pic hypermarket network, despite its over EUR 150 million cash flow in 2008 and about 3,000-strong workforce, incurred substantial debts owed to providers which led to its being rendered insolvent a year later. On the premises of the Pic ex-hypermarkets the Success network (Success Nic Com) managed to inaugurate homonymous hypermarkets toward the end of 2010, after being rented from the liquidator.

A similar fate befell the Ethos supermarket network which had to close down all its 20 operated stores. While some of its locations were permanently closed down, the profile of other stores was changed into textile units by the Vismontho Trading Company. During this time Univers'all, Trident and G'Market were closed down along with a range of small stores. As highlighted in Table 13, the stores of the previously mentioned networks were actually the source of the main acquisition transactions carried out by the other competitors.

Table 13: Acquisition of stores in the Romanian retailing—2010 and 2011

Year of acquisition	Bought retail chain	Location	Nr. stores	Buyer (Chain)	Value	Surface store (m2)
2010	Plus (Tengel-mann)	Various cities	95	Lidl (Lidl / Schwarz)	200 mil. €	900-1.000
2010	Minimax Discount	Various cities	31	Mic.ro	0,5 mil. € / magazin	750
2010	Ethos	Târgovişte	1	Profi	0,3 mil.	500-1.000
2010	Ethos	Various cities	6	Vismontho Trading	d.u.	cca. 500
2010	Primăvara (Can Serv)	Bucharest	2	Mega Image	d.u.	400-700
2010			1	Carrefour market	d.u.	cca. 900
2010	Hard Discount	Braşov	2	Spar	d.u.	cca. 1.000
2010/11	Pic	Craiova	4	Succes	d.u.	5.500
2011	Ethos	Bucharest	1	Mega Image	d.u.	400-700
2011	G'Market	Bucharest	3	Mega Image	d.u.	400-700
2011	G'Market	Iaşi	2	Carrefour Market	d.u.	850

2011	Fidelio	Roman, Paşcani	2	Profi	d.u.	500-1.000
2011	Red Market (Delhaize B.)	Various cities	11	Mega Image (Delhaize B.)	Rebranding	400-700

u.d.—unavailable data;

Sources: Roşca (2011a-b), Popescu (2009), Other articles in Piaţa – Revista Bunurilor de Larg Consum, Wall-Street Journal and the companies' websites

We should draw attention to the fact that this wave of acquisitions is not necessarily due exclusively to the bankruptcy or insolvency of various retail networks. The difficulty in adapting to the new market realities, the forecasts of a bleak future for disposals or the fear that their situation might grow worse prompted the management of some networks to reduce the number of selling spaces or even sell the retail businesses. And last but not least, some domestic investors might have resorted to the liquidation of their retail business in order to strengthen the other strategic units or to obtain a proper equivalent value for the already made investments. AS regards the international networks (Plus, Lidl, Delhaize), the decisions adopted in Romania are an integral part of the global strategies which are aimed at ensuring sustainable expansion in the Central Europe (Lidl), consolidation on the already penetrated markets (Delhaize) or withdrawal from the market (Plus) in order to focus on those markets that facilitate a sustainable recovery of investments.

5.2. Reduction in activity

The economic crisis brought about a slowdown in the expansion activities—the opening of new stores—of all retail networks on the market. In 2006, 2007 and even the early part of 2008, managers believed they were able to inaugurate on a yearly basis by 20% to 30% more new stores than the number of those already existing. By contrast, the new market reality caused a "rapid" slowdown of this trend. Moreover, some retail networks completely disappeared due to payment default whereas others recorded large fluctuations in the number of stores, having to close down units in less profitable areas and striving to inaugurate new branches where the studies indicated potential buyers. The reduction in activity did not necessarily imply the closing down of stores or the selling of some units but also the optimization of the selling spaces (most often by reducing their area), the rethinking of the assortment structure, the relocation of units in areas with heavy traffic or the constant care for the proper in-store display.

Consequently, the Spar discount network closed down two units in Alba Iulia in June 2010 only to inaugurate another store in Brasov a month later (Spar Discount closed two stores in Alba Iulia and opened another one in Brasov, in Piaţa – Revista Bunurilor de Larg Consum, July 2nd, 2010). The Spar network is currently operated on a franchise basis (Master-Franchise) with the intention of strengthening its position in the future through the inauguration of proximity stores, and supermarkets under the retail brands Eurospar, Spar and Spar Express (Retail Center Association acquired for Romania the franchise of Spar International).

In addition to Spar, Ethos, G'Market, Pic, Univers'all and Trident, other domestic retail enterprises were obliged to close temporarily or permanently their operated stores. The first signal that the strategic decisions adopted by domestic retail enterprises were far from being the best came from the closing of the Univers'all supermarket network in 2007. All the 14 units were closed and sold within a short time to the other competitors. 2009 marked the entrance into payment default of the Pic hypermarkets and the Trident network which incurred debts of about EUR 60 million and EUR 25 million, respectively. These resounding bankruptcies were followed by the demise of the Ethos

supermarket network which closed all its 20 units (Roşca C., G'Market, the fifth disappearance caused by the crisis in the local retailing, in Ziarul Financiar Online, section 'Companies', December 5, 2011).

Another effect of the economic crisis was the necessity to rethink/reassess the disposal areas owned by some networks operating in the Romanian retailing. Thus, in the case of electronics, household appliances and IT stores (Altex, Media Galaxy, Domo etc), the selling areas were reduced from 3,500-4,000 sqm prior to 2008-2009 to about 1,500-2,000 sqm at the moment. Their assortment is relatively the same as before but the product stocks were highly reduced. Each of the 25 Real supermarkets have lately been subject to a "remodeling" worth EUR 0.5 million whereby the assortment was "adapted" to the customers' new requirements and the structure of the departments was reshaped. At the same time, the management decided to include a significant number of articles from domestic providers and/or producers (90% of the assortment) (Popa, 2011).

6. Conclusions - Effects of the economic crisis

The economic crises had several effects on Retailers present in Romania. As has previously been highlighted, some of the main effects of the economic crisis felt by the retail networks are:

- professionalization of the retail market through shutdown of stores (Hard Discount, Fidelio), acquisitions, renting (out), takeovers or partnerships (Angst's cooperation with Carrefour and the opening of the Carrefour Express proximity stores);
- consolidation of the number of stores operated in Romania by foreign retail networks;
- strengthening of retail enterprises through takeover (acquisition) of the networks that failed to cope with the challenges posed by the economic crisis;
- opening new retail formats—the Metro cash & carry network decided to open in cities or areas of 100,000 inhabitants the Metro Punct units for organizational consumers and resellers;
- reorientation of retail networks toward profitable locations, in areas with heavy traffic and in cities under (supermarkets and discount units) and over (hypermarkets) 100,000 inhabitants;
- expansion of proximity store networks (such as mic.ro) featuring narrow assortments but placed in the immediate neighbourhood of buyers;
- many retail networks focused on measures to draw and retain customers by developing and providing a wide range of own brands (Lidl);
- inclusion in the marketed assortments of a significant number of articles from Romanian producers and/or providers (up to 90% at mic.ro, Real);
- changes of in-store display in order to better facilitate customers' access to shelves and relevant products;
- adaptation of the assortment and the store area to people's real needs and their purchasing power.

Instead of the economic crisis showed by the consumption reduction, 2011 was a good year for the Romanian retail market. New retail format, discount store found opportunities to attract consumers with low prices and private labels. Near Lidle other retailers (Profi, Mega Image) develops their store chains also.

Acknowledgement

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China's monetary sterilization and it's economical relationship with the European Union

Tamás Gábor

The author examines China's monetary policy in the light of the sterilization process of the excess liquidity caused by the permanent foreign exchange rate intervention. The tools of the neutralization of the monetary oversupply, its effectiveness and its costs are also investigated. With the help of Two-stage least squares (2SLS) regression method it is demonstrated that the sterilization process of the yuan has been almost a total success on the level of the monetary base, and has been partially effective on the level of the M2 supply in the past 15 years. With a cost-benefit analysis it is highlighted that the practice of the monetary sterilization – which is thought to be loss-making in the literature – has been a profitable operation of the central bank up to date.

After the demonstration of the monetary sterilization, the economic relationship between China and the European Union is investigated. It is pointed out that China's role as a global importer and a global investor has been significantly appreciated. Thanks to China's active economic presence in the European market during the crisis, the recession of the European economies were probably much moderate.

Keywords: China monetary sterilization, 2SLS, European Union, crisis

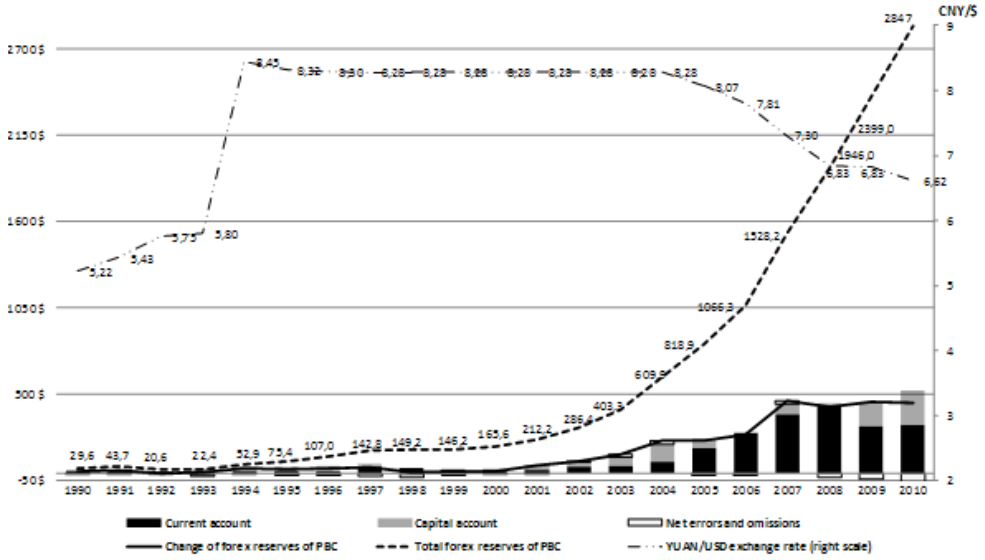
1. Introduction

The continuous managing of the exchange rate of the Chinese currency puts serious challenges to China's central bank, The People's Bank of China (hereinafter referred to as PBC), on a daily basis. In the last three years – presupposing 250 trading days per year – it has daily purchased 1.9 billion USD for yuan in the Shanghai foreign exchange market, and as a result, it has doubled its reserves since the beginning of 2008.[1] Given that one of the focal points of social tensions has always been the mass impoverishment caused by inflation, the Chinese party leadership takes fighting against inflation extremely seriously. In the light of this, the monetary policy gives high priority to neutralizing the monetary oversupply.

In foreign exchange purchase, the central bank chooses between the options of purchasing at the expense of increase in the monetary base and financing the purchase by decreasing the net domestic assets. The latter is made possible by the sale of available government bonds, the auction of bonds and swap and repo operations. However, the monetary authority is able to sterilize the liquidity increasing effect of foreign exchange inflows not exclusively on the level of the monetary base. Raising the required reserve ratio through the multiplier effect is also able to reduce the supply of broader monetary aggregates.

[1] At the closure of the study, 30th June 2011, the PBC foreign exchange reserves increased by 30.3%, to 3197 billion USD in one year. It equals approximately to six hundred thousand billion in HUF!

Figure 1: The components of China's balance of payments, the tendency of foreign exchange reserves and yuan exchange rate, 1990-2010, in million USD



Source: CEIC (2011), SAFE

China's economic policy has indeed become the focus of international research after joining the World Trade Organization in 2001. Just at the time when the growth in the central bank reserves started to accelerate (Figure 1). The Chinese reserves have been impetuously increasing as a result of the twin balance of payment surplus[2] ever since. A considerable part of the increase is caused by the current account sufficit, which has an amount only of 12 billion USD in 1990 and 426 billion USD in 2008.[3] In the past years, however, the net capital inflow has been playing an increasingly important role within the balance of payment sufficit. Last year the 226 billion surplus of the capital account was the highest value of all time! Knowing all this, a double cause can be identified underlying China's unique reserve growth dynamics. On the one hand, it can be explained by the objectives of the Chinese economic policy pursuing a strictly managed exchange rate policy and supporting de facto export. Many analysts claim that for maintaining competitiveness China fixes the exchange rate of its currency undervalued by 30-40%[4] against USD.[5] The weak yuan is advantageous both for the export sector and for the investments of multinational companies in China. The former increases the current account sufficit, the latter the capital account sufficit.

On the other hand, we emphasize the speculative demand aimed at the future strengthening the Chinese currency. The one-way bet of short-term profit oriented investors on exchange rate strengthening is able to move huge amount of foreign exchange. Since the hot money can be extremely harmful concerning an emerging economy, China's decision makers try to prevent this type

[2] Gábor's (2010a) article contains a detailed analysis on the causes behind China's irregular twin balance of payment surplus and the development of twin sufficit.
[3] If we examine the components of the current account, we can see that the trade sufficit – including the export of goods in particular – is responsible for the most part, 77% of the sufficit.
[4] These views are represented mainly by the noted economists of the American *Peterson Institute for Economics* (Bergsten, 2010; Cline et al., 2009; Goldstein et al., 2006), and by Paul Krugman, who was the recipient of the Nobel Prize in Economics in 2008.
[5] I make a note here that there are experts who consider the nature of the global financial tensions different. The economists of the global monetarist view, McKinnon and Schnabl (2011) claim that the international disequilibrium is only a temporary state. They think that in the case of the rising Asian economies the fixed exchange rate is "needed" for the stabilization of the Asian region.

of capital flow with strict capital and administrative requirements.[6] Despite all this, in the past nearly one decade there has been increasing volatility in the short-term capital flows (capital account) and on the net errors and omissions account of the balance of payment, which implies the limit of the efficiency of capital controls. Without foreign exchange market intervention, the intensive capital inflow would result in the uncontrollable strengthening of the USD exchange rate of the yuan, which would be incompatible with the objectives of China's mercantilist trading policy. The regular foreign exchange purchase, however, would induce intense increase in money supply and in inflation (real exchange rate appreciation), which would make the realization of the previously mentioned objective and the plan to put an end to poverty uncertain. Maintaining the status quo necessitates the immediate neutralization, sterilization of the liquidity increasing effect of foreign exchange purchase.

We intend to describe as follows the sterilization techniques applied by the PBC through examining the items of the central bank balance sheet.

Table 1: Schematic balance of payments of the People's Bank of China

Assets	Sources
Foreign assets	Monetary base (cash in circulation + deposits of commercial banks)
Claims on government	Deposits of government
Claims on depository corporations	Foreign liabilities
Claims on and other financial and non-financial corporations	Issued bonds
	Equity capital
Other assets	Other liabilities

Note: **Net foreign assets** = Foreign assets – foreign liabilities
Net domestic assets = Claims on financial and other financial and non-financial institutions + Claims on government + Other assets – Issued bonds – Deposits of government – Other liabilities = **Monetary base** – **Net foreign assets** + Equity capital of central bank

Table 1 demonstrates the simplified form of the PBC balance. The net domestic assets (hereinafter referred to as *NDA*) and the net foreign assets (hereinafter referred to as NFA) can be easily calculated. Based on this, the basic equation of the central bank's balance of payment can be formulated, according to which the sum of the net foreign and the net domestic assets is equal to the sum of the monetary base and the equity capital.[7] If the NFA, i.e. approximately the central bank reserve increases, it results in increase in the monetary base for lack of open market sterilization.

[6] The active control of the arbitrage capital is needed in order to avoid the damage in the monetary independence of the central bank beside the strictly managed exchange rate regime. The "impossible trinity" of economic policy, which is frequently referred to as monetary trilemma by the literature, does not allow the simultaneous realization of monetary independence, fixed exchange rates and international capital flows. Consequently, the problem and the conflict of the simultaneous realization of internal economic and external economic objectives, that is the objectives of inflation and exchange rate, emerge (Triffin dilemma). Since for China both objectives have similarly high priority, the controlling authorities have a very considerable role in the "coordination" of the processes of "social market economy" – from bank lending to controlling factor prices.

[7] Since the PBC equity capital – which has had an unchanged value since 2003 – has a negligible amount in the ratio of the balance sheet total (21.9 billion yuan ~ 3.3 billion USD), we disregard this balance sheet item in our calculations.

Provided the central bank intends to stem the growth in monetary supply, it can do so by decreasing the net domestic assets and by raising the required reserve ratio. According to the quarterly published Monetary Report, the two main sterilization tools of the PBC are the open market operation and the control of required reserve ratio, both having different effects on money supply. Table 2 shows the effect mechanism of the two methods.

Table 2: Sterilization tools

Method	Process
Open market operations (issuing bonds and repos)	1. NFA increases by ΔNFA
	2. MB = NFA + NDA increases by ΔNFA
	3. NDA decreases by ΔNDA, MB returns to original level
	4. M2= MB * mm constant
Raising the required reserve ratio	1. NFA increases by ΔNFA
	2. MB increases
	3. mm decreases through raising required reserve ratio
	4. M2= MB * mm constant

Note: mm is the abbreviation of monetary multiplier, MB stands for monetary base.

While by the open market operation, excess liquidity can be directly withdrawn from the market, raising the required reserve ratio can reduce oversupply through decreasing the money market multiplier. It can be generally established that the sterilization with required reserves is a cheaper solution for the monetary authority, since it entails considerably lower interest burden than market rates.[8]

The most frequently applied open market sterilization techniques are the bond issue and the short-term – mainly 91-day – security repurchasing, so-called repo transactions.[9] The third tool of sterilization is the *window guidance (moral suasion)*. This latter practically means verbal intervention, in which the central bank forces that the operation of commercial banks and through them the monetary supply should develop by keeping the nation's interest in view (e.g. it sets the credit ceilings). Since the quantification of the latter method is quite problematic, it is not incorporated in our study.

The neutralization of the monetary oversupply was implemented through selling the government bonds of the central bank until 2002. However, due to the shortage of bonds, the central bank has been sterilizing excess liquidity by issuing own bonds (*central bank bill*, CBB) since 2003. The first issue took place in April 2003, since then bond auctions have been held on a weekly basis.

The three-month and the one-year bills are the bonds of the most frequent maturity, but six-month bonds were auctioned on several occasions before 2006, while bonds of three-year maturity are periodically issued.[10] The sterilization bonds of financial institutions expanded to 4.800 billion yuan in

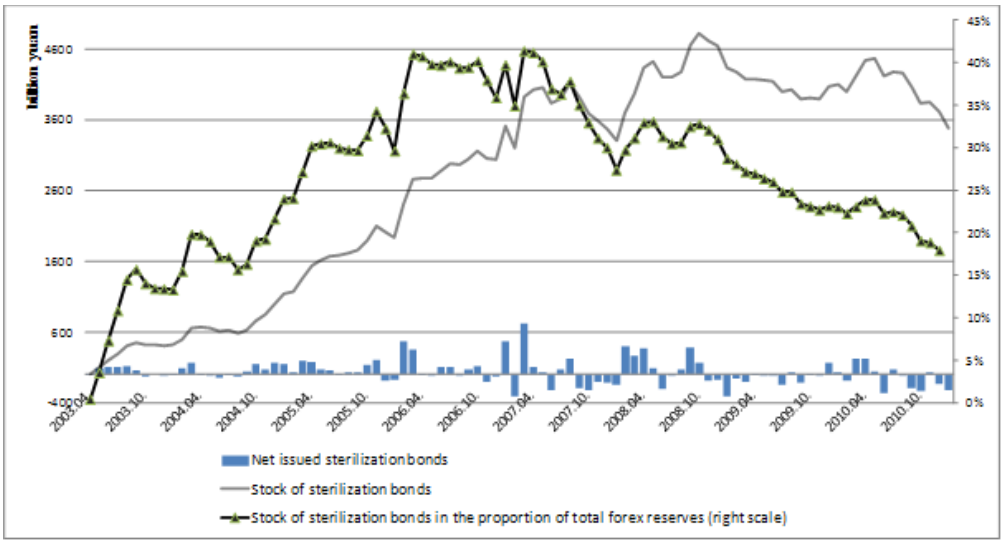
[8] The increase in required reserve ratio is an implicit taxation form, which increases the interest margin between deposits and credits through the decreasing profitability of the bank sector and has a reducing effect on competition. Árvai's (1995) work deals with the welfare loss and controlling role of the reserve ratio increase in greater detail.

[9] The central bank of China has also been trying to stem the monetary oversupply with swap operations since 2005. However, we do not have related data series, since the PBC does not make the details of swap transactions public.

[10] From April 2010 until the end of the year, due to the concerns over the increasing inflation, bonds of 3-year maturity for more than a thousand billion yuan were issued for eight months.

five years – by October 2008 –, then it lessened to 3.500 billion yuan by the beginning of 2011. The shrinking of open market operations is reinforced by the fact that the proportion of bonds to the central bank reserves has considerably decreased, from 40% to 18% in the past four years (Figure 2).

Figure 2: Open market sterilization of PBC, 2002-2010



Source: CEIC (2011), China Monetary Policy Report

Although the regular rise of the required reserve ratio has significant distorting effect on markets[11], China's monetary authority still employs this practice with growing regularity after the second half of 2000s in order to control monetary supply. Until the closure of the article, July 2011, the central bank raised the reserve rate required after deposits to 21.5% (Figure 3). Despite the fact that the gradual increase in required reserves already began in 2003, the total reserve ratio – which contains the excess reserve besides the required – decreased from 2006 12.3% to 10.6% until the mid of 2006! This could be realized by that commercial banks rearranged the required deposits charged on the excess reserves. In the light of this, the sterilization function of raising the required reserve ratio remained ineffective up until the first half of 2006.[12]

The initial high level of excess reserves can be traced back to a double cause. On the one hand, due to strict capital controls and the immature and not prudent financial intermediary system the central bank deposits did not have a serious alternative. On the other hand, the PBC paid an equal, 1.89% interest payments on both the required and the excess reserves.

In the course of our research we aimed to examine the effectiveness of monetary sterilization[13] with regression-analysis of the changes of central bank's balance sheet data and the macroindicators on the

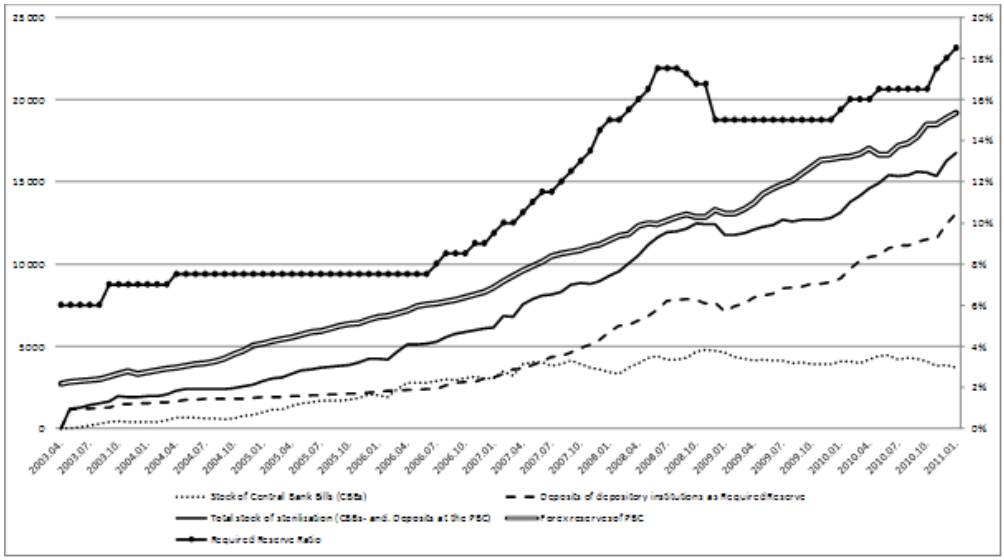
[11] The rising countries – e.g. Malaysia, Korea, the Republic of the Philippines – regularly took the advantage of the reserve ratio increase in order to neutralize the increasing monetary oversupply caused by intensive capital inflow in the 1990s (Takagi and Esaka, 1999).

[12] The reduction of the initial high level of the excess reserves lowered the decreasing effect of the increasing reserve ratio on the money multiplier until the first half of 2006. According to our calculations, the average 4.6 value of the M2 multiplier between September 2003 and June 2006 did not decrease despite of the 1.5% increase of the required reserve ratio. In our opinion, these changes can be explained not only by the rearrangement between the excess-required reserves but also by the institutional changes, occurring in currency holdings.

[13] In the quantification of the effectiveness of monetary sterilization, we started out from the MB=NDA+NFA equation. We examine the extent of the net domestic assets decrease that follows the net foreign assets (foreign exchange reserves) increase. Performing a similar analysis between the monetary base and the NFA would be problematic because, on the one hand, the PBC does not publish the distribution of required and excess reserves within the central bank deposits, on the other hand, with the change of economic cycles other changes which

level of monetary base and M2 supply, furthermore, to quantify the costs of the sterilization practice. After outlining the literature studying the effectiveness of sterilization, we describe the methodology we have chosen and the processed data series. In the next stage – relying on the estimated parameters of the regression model – we draw inferences about the effectiveness of neutralizing the Chinese monetary oversupply. Finally, we examine by comparing the sterilization costs and the yields earned on foreign assets that what costs today's practice of exchange rate policy imposes on monetary policy, furthermore, we make assumptions in connection with the sustainability of the current practice.

Figure 3:The amount of money neutralized in monetary sterilization, tendency of reserves and required reserve ratio, 2003–2011, billion yuan



Source: CEIC (2011)

2. Methodology

Many studies deal with the central bank reaction to foreign capital inflow, and its effect on the monetary and economic environment. In the past two decades, the number of researches which focus on the monetary reaction function of the Asian countries, especially of China, has been multiplied.

One of the most popular methods of examining the relationship between the NFA and NDA is the regression analysis. This method is built on the estimations of the linear regression of two structural equations, in which the subject of study is what kind of effects the independent variables involved in the model have on the examined dependent variable, i.e. to what extent they can predict it. The regression equation is the following in general:

$$y_i = \beta_0 + \beta_1 \cdot x_{i1} + \beta_2 \cdot x_{i2} + \ldots + \beta_m \cdot x_{im} + \epsilon_i \qquad (1)$$
$$i = 1,2,\ldots,n \text{ and } m + 1 < n < N$$

,where y_i is the dependent variable of the model, x_i is the independent vectors, β_m is the coefficients of the explanatory variables, and ϵ_i is the random error of the model. The coefficient of the NFA is the *sterilization coefficient*, which shows the extent and direction of change that the unit increase of foreign exchange reserves causes in the net domestic assets of the central bank. If its value is -1, it

cannot be related to sterilization may also occur in the required reserve deposits, which would distort the outcome of the analysis.

means the total neutralization of excess liquidity, 0 means the total absence of sterilization. The other named coefficient is the *offset coefficient*, which indicates how the foreign capital flow reacts to the changes of the domestic monetary environment. The -1 value of the coefficient refers to perfect capital mobility, while the value 0 refers to total capital control.

Aizenman and Glick (2009) featured the quarterly GDP change as control variable in their model, in which it received -0.6 and -1.4 values for the sterilization coefficient. Wang (2009) also ignored the phenomenon of endogeneity emerging between the net capital flow and the net domestic assets in his analysis. In the course of analysis, he received a value of -0.3 for the offset coefficient, and -0.96 for the sterilization coefficient.

The basis of the regression is the method of *ordinary least square*, hereinafter OLS, whose condition is that the model is homoscedastic and autocorrelation and multicollinearity do not emerge in the model. The estimation with OLS is problematic because it does not take into account the fact that the net capital flown has a simultaneous effect on the net domestic assets of the central bank, and this latter has repercussion on the a foreign exchange flow. Since the dependent variables are defined in an exogenous way, the method of ordinary least square does not render it possible to examine the interaction effects. Due to the problems the applicability of the OLS entails other regression techniques may come into prominence (Brissimis et al., 2002; Kim, 2003; Ouyang et al., 2010; Wang, 2009). For instance, the 2SLS, i.e. the two-stage least squares method[14], which examines the effect of independent variables on dependent variables by simultaneous structural equations, in addition to eliminating the problem of endogeneity. This technique is used when the random errors of the dependent variable correlate with the explanatory variables. The basis for applying the 2SLS may be that one explanatory variable (NFA) correlates with the random error (u), thus the estimation of the regression coefficient (β_1) will be distorted.

$$\Delta NDA = a + \beta_1 \Delta NFA + \beta_i X_i + u \qquad (2)$$

In the first step, the variable considered endogenous (NFA) is regressed on the instrumental[15] variable or variables (z):

$$\Delta NFA* = a + \beta_1 z + v \qquad (3)$$

In the second step, the equation is formulated with using the value predicated in the equation (3) (ΔNFA*) instead of the endogenous variable (ΔNFA):

$$\Delta NDA = a + \beta_1 \Delta NFA* + u \qquad (4)$$

The greatest challenge of the 2SLS method is to select the instrumental variables correctly, which allows us to take account the simultaneous interactions of the changes of the NDA and NFA. Ouyang et al (2010) used government expenditures as the instrument of the NDA, while real effective exchange rate as the instrument of the NFA. The β sterilization coefficient takes on value -1.02 in his model in the period of 2000–2008, which implicates total neutralization of excess liquidity. Our assumption that government expenditures do not have a direct effect on foreign capital inflow is questionable. Taking this into consideration, the unbiased of the estimation can also be queried. The

[14] In our research, we calculated with the help of LeSage's (1999) JPL Econometrics Toolbox in Matlab: http://www.spatial-econometrics.com/

[15] Instrumental variable (z) is the variable which does not correlate with the random error of the original regression equation (u), [Cov(z,u) = 0] at the same time it correlates with the variable (ΔNFA) which correlates with u according to the assumption, that is: [Cov(z, ΔNFA) ≠ 0]

fiscal expansion produces yield decrease on the government securities market, which certainly has an effect on the direction and intensity of the capital flow. Kim (2003) also claimed that the high budget deficit has a negative effect on international capital inflow.

Zhang (2010) chose the volatility of exchange rate as the instrumental variable of the NFA, while in the case of the NDA he selected a dummy variable[16]. Nevertheless, no coefficients of the instruments had significant explanatory force; in addition, the coefficient of the dummy variable took on a sign contrary to his expectations.

In our research we chose the 2SLS method as the analytical framework, in the course of which we modified the set of regressor and instrumental variables used in the literature, in this way we tried to estimate the effectiveness of sterilization on a more robust manner. We aimed to select such indicators as predictive variables in the model that, on the one hand, have an effect on the movement of foreign capital flow, on the other hand, have decisive momentum in the decisions of the monetary policy. In addition to the explanatory variables applied in the literature (Brissimis et al., 2002; Kim, 2003; Ouyang et al., 2010) we also used regressors that in our opinion increase the predictive capability of the estimation.

We chose the 12-month volatility of the yuan exchange rate and the quarterly change of the Shenzhen Composite Index as instrumental variable. The volatility of the exchange rate is exogenous with regard to the changes of the net domestic assets, while it moves together with the net foreign assets in a slightly positive direction. Furthermore, while no correlation can be shown between the indicator of the stock index and the foreign exchange, the stock index moves in the opposite direction to the change of the net domestic assets.

We describe in this chapter how the particular control variables are able to grasp the movers of capital flows and the direction of monetary policy.

The literature concerned with the Chinese sterilization generally points out that the neutralization of monetary oversupply by authorities started after 2000. In the course of our analysis, however, for the better interpretability of the explanatory force of the estimated coefficients we processed the data of a longer period. Since the shortest breakdown of the GDP data published by the National Bureau of Statistics of China is a quarter, in our analysis we built the model on the quarterly data of the period between 1995Q3 and 2010Q4[17]. The CEIC (2011) China Premium Database, the PBC and the BIS website served as the source of the input data series. Table 3 contains the short definition, formula and sources of the variables.

[16] The dummy variable took on value 1 in every fourth quarter, while 0 in the rest. Zhang (2010) started out from the purchasing habits of the Chinese. As the new year comes, the commercial banks increase their reserves for greater liquidity. His basic assumption is that the arrival of the new year does not have any kind of effect on foreign capital flow.

[17] The input data set consists of 62 columns. It satisfies the quantity criteria necessary for the regression calculation, but the values of the coefficients have to be interpreted with proper caution. It would have been more practical to start out from monthly data, but the required monthly GDP was not available.

Table 3: Description, formula and source of the used explanatory variables

Variable	Description	Mode of calculation	Source
NFA_t	Forex reserves of PBC in USD minus central bank foreign liabilities	$Foreign\ assets_t * e_t^{(RMB/\$)} - Foreign\ liabilities_t$	IFS
ΔNFA^*_t	The extent of change in the assets of NFA, corrected by the yield on foreign assets and exchange rate effects; in the ratio of GDP	$\frac{\Delta\left\{NFA_t - \left(\frac{e_t - e_{t-1}}{e_{t-1}}\right) NFA_{t-1} - \frac{i_\$}{4}\left(\frac{NFA_t + NFA_{t-1}}{2}\right)\right\}}{GDP_t}$	PBC, CEIC
ΔNDA^*_t	The extent of change in the assets of NDA in the ratio of GDP	$\frac{\Delta MB_t}{GDP_t} - \Delta NFA^*_t$	CEIC
mm_t	M2 money market multiplier	$M2_t / MB$	CEIC
Δmm_t	Change of multiplier	$Ln\ (mm_t) - Ln\ (mm_{t-1})$	CEIC
ΔRR_t	Change of required reserve rate	$Ln(RR_t) - Ln(RR_{t-1})$	CEIC
ΔCPI_t	Delayed change of consumer price index	$Ln(CPI_t) - Ln(CPI_{t-1})$	CEIC
ΔNEX_t	Change of net export in the ratio of GDP	$\frac{(NEX_t - NEX_{t-1})}{GDP_t}$	CEIC, IFS
ΔG_{t-1}	Change of government expenditures in the ratio of GDP	$\frac{G_{t-1} - G_{t-2}}{GDP_{t-1}}$	CEIC
$\Delta SZSE_t$	Change of the Shenzhen Composite Index in value	$Ln(SZSE_t) - Ln(SZSE_{t-1})$	CEIC
$\Delta REER_t$	Change of real effective exchange rate	$Ln(REER_t) - Ln\ (REER_{t-1})$	BIS
$\Delta R_{\$t}$	Change in three-month yields of the American money market	$Ln(i_{\$t}) - Ln(i_{\$t-1})$	CEIC
y_{ct}	Cyclical GDP. Deviation from the quarterly GDP trend (HP trend)	$\frac{GDP_t - GDP_t^T}{GDP^T}$	CEIC
$vol\_exch_{t-12,t}$	Volatility of USD exchange rate of yuan	$\frac{\sum_{i=0}^{12}\left(e_{t-i} - \overline{e_{t-12,t}}\right)^2}{12}$	PBC

We examined the change of the NFA, NDA, NEX and G in the ratio of the GDP produced in the given period, while the majority of the other variables were defined in logarithm. We used Hodrick–Prescott filter[18] to determine the long-term trend of the real GDP, with the help of which we calculated the cyclical GDP.

For defining the net foreign assets of the monetary authority, similarly to the literature, we did not start out from the data of the foreign assets in the central bank balance sheet, but we based on the values of the foreign exchange reserves published by the IMF IFS. Furthermore, we took account of those kinds of changes of the NFA which cannot be related to the in- and outflow of the foreign capital. Adapted from Aizenman et al. (2008) we filtered out the changes of foreign exchange reserves produced by exchange rate revaluation according to the following: $NKE_{t-1}(\frac{e_t - e_{t-1}}{e_{t-1}})$, where e_t is the nominal exchange rate of yuan-USD at period t. [19] In addition, we corrected the NFA by the yield earned on the central bank's foreign investments. In the course of calculation, for the sake of simplification we assumed that the foreign exchange reserve was in its entirety put in a 10-year American government

[18] The HP filter is a popular smoothing technique in the econometric toolbox. It gives the estimation of the long-term trend component of a time series. For smoothing we used λ=1600.

[19] Since the PBC does not publish public data regarding the composition of the foreign exchange reserves, it is not possible to exactly filter out the exchange rate effects. The literature estimates that the dominant part of the reserves – more than 70% – is USD-based, thus we made a simplification in our calculations by considering the total reserves as based on USD assets.

bond investment.[20] The quarterly yield was calculated as the product of the value of the average NFA and the value of the American government bond yield projected to quarter.

The value of the corrected NFA* was calculated with the following formula:

$$\Delta NFA *= \frac{\Delta\left\{NFA_t - \left(\frac{e_t - e_{t-1}}{e_{t-1}}\right)NFA_{t-1} - \frac{i_\$}{4}\left(\frac{NFA_t + NFA_{t-1}}{2}\right)\right\}}{GDP_t} \quad (5)$$

The ΔNDA asset is the difference of the change of the monetary base and the changes of the net foreign assets.

Our equations are the following:

$$\Delta NFA = \alpha_0 + \alpha_1 \Delta NDA + \alpha_2 \Delta mm_t + \alpha_3 \Delta RR_t + \alpha_4 \Delta CPI_t + \alpha_5 \Delta NEX_t + \alpha_6 \Delta G_t + \alpha_7 \Delta REER_t + \alpha_8 \Delta R_{\$t} + \alpha_9 y_{ct} + \alpha_{10} vol\_exch_{t-12,t} + \epsilon_t \quad (6)$$

$$\Delta NDA = \beta_0 + \beta_1 \Delta NFA + \beta_2 \Delta mm_t + \beta_3 \Delta RR_t + \beta_4 \Delta CPI_t + \beta_5 \Delta NEX_t + \beta_6 \Delta G_t + \beta_7 \Delta REER_t + \beta_8 \Delta R_{\$t} + \beta_9 y_{ct} + \beta_{10} \Delta SZSE_t + \eta_t \quad (7)$$

,where Δmm is the M2 money market multiplier, ΔRR is the required reserve ratio, ΔCPI is the consumer price index, ΔNEX is the net export, ΔG is the government expenditures, $\Delta REER$ is the yuan real effective exchange rate, $\Delta R_\$$ is the change of the three-month American money market interest rate, and y_c is the cyclical GDP. The instrumental variables are the vol_exch, the 12-month volatility of the yuan exchange rate, and the $\Delta SZSE$, which shows the change of the composite index of the Shenzhen Stock Exchange.

In the case of the β_1 sterilization coefficient we expect a negative value, since the neutralization of the excess liquidity generated by capital inflow by open market operations has a reducing effect on the central bank's net domestic assets. According to Ouyang et al. (2010), an offset coefficient near 0 and a sterilization coefficient near -1-hez indicate the higher independence of the monetary policy.

In the case of the *money market multiplier*'s α_2 coefficient, a minus sign is probable. The increasing multiplier indicates expansive economic policy and decreasing required reserve rate, which can result in capital outflow through the lower yield levels. In the case of β_2 the situation is less unequivocal. The effect of the multiplier on the net domestic assets depends on whether the monetary restriction is implemented by open market operations or by raising the required reserve ratio. In the case of the former, the β_2 takes on a minus sign, i.e. the NDA decrease, while in the latter case the NDA may as well increase (cf. Table 2 above). In addition, the accelerating increase in the money supply may generate the introduction of bank credit ceilings and stricter capital controls, which may result in the move of the β_2 in negative direction.

Raising the *required reserve ratio* brings about the increase in interest surcharge on one side, which motivates the inflow of foreign capital, and it increases the monetary base on the other side. We expect the coefficients of the RR – α_3 and β_3 – to be slightly positive.

The danger of the runaway of *inflation* has been hanging over the head of the central bank like the sword of Damocles for decades. Therefore the monetary authority uses all possible means to stop

[20] This assumption does not stand far from reality, because according to the annual statement published by the American Ministry of Foreign Affairs, the total value of the American investment possessed by China was 1611 thousand billion USD on 30 June 2010, the 92% of which was deposited in long-term assets.

inflation. Consequently, the coefficient (α_4) is probable to have a minus sign in the case of equation (6), since the fear of devaluation and capital loss usually urges the foreign investors to withdraw capital. The question in both cases is that how large is the time frame between the inflation and the economic-political and investor reactions it produces.

While in the case of increase in *net export*, thus in the export income the rise of NFA can be prognosticated, its effect on the NDA is not unequivocal. However, taking account of China's export-oriented economic policy, the excessive increase in export as one of the signs of economic exaltation may as well generate restriction measures on the part of economic policy.

Due to the government's overspending the risk premium of the country will probably increase, which results in a rising yield environment. In the light of higher yields, an increasing proportion of commercial bank sources are deposited in the central bank, which induces the shrinkage of the net domestic assets (negative β_6 coefficient). Although the increasing yields induce capital inflow on the other side, the deterioration of country risk – which results in outflow – is a much more powerful factor in making investment decisions. Consequently, we expect a decrease in the case of the foreign exchange assets (NFA) as well.[21]

According to our assumptions, the effect of the *real effective exchange rate* on the central bank reserves can be two-directional. On one side, the strengthening of the exchange rate can bring about the decrease in foreign exchange reserves through the deteriorating current account, while on the other side, in the light of the intensifying expectations of exchange rate appreciation[22] – and with the acceleration of the hot money inflow – it can bring about increase in reserves. Since the appreciation of a country's foreign exchange rate can be counteracted by economic expansion, i.e. by the expansion of domestic money supply, we expect plus sign in the case of the β_8.

The effect of *foreign (dollar) yield increase* can be estimated in the knowledge of uncovered interest parity conditions. The more advantageous foreign investment possibilities created by rising American interest rates result in capital outflow,[23] i.e. it probably has a reducing effect on the NFA. The central bank can respond to it with interest rate increase and monetary restrictions, which may result in the reduction of the NDA.

The effect of the *cyclical income*[24] on central bank reserves – similarly to the real exchange rate – can be dual. The real GDP growth caused by economic boom impairs the current account balance through the income effect, which may lead to the reduction of capital inflow. At the same time, the real economic expansion can increase the investors' trust in the Chinese economy, which can motivate

[21] However, it also can occur that the increase of both the foreign exchange assets and the central bank's source side happen simultaneously as a consequence of the increasing financial demand of the state, e.g. in the case of government currency credit.

[22] The offshore forward exchange rate of the yuan (NDF, non-deliverable forward) showed a significant premium in contrast to the spot exchange rate in the slipping revaluation periods as well. This means that the revaluation tension does not decline in the course of the revaluation process.

[23] Instead of the American money market yields, it could have been justified to present the spread of the Chinese – American yields as explanatory variables in the model. However, it was not practical for two reasons. On the one hand, the role of the Chinese monetary policy is still authoritative in the development of domestic interest levels through defining the directive deposit and credit interest rates. On the other hand, the strict administrative capital controls in force reduce the latitude of the free flow of arbitrage capital, which limits the fulfillment of the interest parity conditions. As a consequence of these two factors, the comparison of the Chinese yields with the American yields can be problematic. Wang (2009) points out that the coefficient of the interest rate spread is often not significant or takes on wrong direction in the regression.

[24] Cyclical income means the positive or negative deviation from the long-term trend of the economic growth.

capital inflow. The economic prosperity generally results in restrictive measures on the part of the monetary policy, thus a negative coefficient is expected in the other case.

3. Empirical results

We checked the stationarity of variables with Augmented Dickey-Fuller (ADF) test. In order to decrease the unit-root problem, we examined the first-degree differentials – i.e. the changes of the value between t and t-1 period – for the majority of the vectors in the model. We employed delay in certain cases in order to reduce the autocorrelation of random errors and to increase the explanatory force of the model. The delay of the particular explanatory variables was received as a result of an optimization procedure. We carried the optimization out in MATLAB (LaSage, 1999). We examined the effect and significance level of the coefficients of all the eight exogenous variables from zero retroactively to three-period delay. We chose the size of delays by model from the 4^8=65536 possible combinations in a way that in addition to minimizing the occasional autocorrelation problem (Durbin-Watson taking on 2 near values), we have the best possible explanatory force (R^2 should be larger than 70%), and the most significant coefficients (significance level should reach value 1%, 5% or 10%). Thus we got the following delays: delays employed in the case of NFA equation: NEX: -2 period; CPI and yct: -1 period. In the case of NDA equation REER, RR, CPI and yct: -1 period; while NEX: -3 period.

The explanatory force of both equations is well above the threshold of 70% suggested for economic modeling. While in the 6th equation the R^2 takes on 0.875, it takes on 0.962 in the 7th equation.[25] Accordingly, the exogenous variable set predicts the change of the NFA and NDA assets in 87.5% and 96.3% respectively. For testing the autocorrelation we relied on the output of the Durbin-Watson test[26]. In the case of the ΔNFA regression the value of DW is 1.69, for the ΔNDA it is 1.92. Accordingly, the autocorrelation is negligible in the case of the former and it can be completely ruled out for the latter.

Table 4 contains the beta (α, β) coefficients received in the course of regression, their standard errors and the applied delays. The β_1 sterilization coefficient is significant and takes on a value of -0.945, which shows a very high degree of neutralization of the monetary oversupply during the examined period. Our received estimation is nearly identical to the similar types of results in the literature. However, our offset coefficient, whose value is -0.897 by a significance level of 1%, considerably differs from the numbers of similar studies. While Wang (2009) received a value of -0.3022 for the coefficient quantifying the flexibility of capital flow as well, Zhang (2010) received a value of -0.65, and Ouyang et al. (2010) received values between -0.63 and -0.71. The offset coefficient near -1 means the fast and flexible reaction of the foreign capital to the changes occurring in China's monetary environment. The difference presumably originates from that the model we examine processes a longer period, lasting until the end of 2010. The smaller coefficient can mean the mitigation of the presence of the state's strict regulators, the approvers of transactions, which can be partly acknowledged in the light of the new priorities of the Chinese monetary policy following the crisis.[27]

[25] R^2 is the *multiple determination coefficient*, which shows the explanatory force of the model. It indicates the strength of the relationship in relation to the extent in which the independent variables predict the dependent variable.

[26] With the help of the Durbin-Watson test we can test the primary autocorrelation of the residuals. In the case of autocorrelation, the assumption that the observations are independent injures.

[27] After the global economic crisis, from the summer of 2010, China's monetary authority placed the continuation of financial integration in the focus. The official and unofficial statements of the central bank's decision makers all reveal that the medium-term aim is the realization of the total convertibility of the yuan, i.e.

However, the extent of the negative difference of our offset coefficient from the similar values of the literature cannot be entirely explained by the changes in the objectives of the monetary policy. According to our assumptions, the speculations related to the one way bet on the currency revaluation may account for the greater capital mobility. Goodfriend and Prasad (2006) pointed out that the efficiency of the Chinese capital controls erodes in the course of time as the domestic and international investors find the channels with which the barriers become evaded.[28]

Table 4: The estimated coefficient parameters of the 2SLS model

		6. equation	7. equation
	Explanatory variables	**ΔNFA_t**	**ΔNDA_t**
	constant	0,047*** *(-0,003)*	0,042* *(-0,023)*
endogen variables	**ΔNFA_t**	- -	-0,945** *(-0,402)*
	ΔNFA_t	-0,897*** *(-0,240)*	- -
exogen variables	**Δmm_t**	-1,137*** *(-0,253)*	-1,222*** *(-0,104)*
	ΔRR_t	0,071* *(-0,038)*	0,001 *(-0,072)*
	ΔCPI_t	-0,307 *(-0,221)*	-0,132 *(-0,241)*
	ΔNEX_t	0,062* (-0,139)	-0,268* (-0,151)
	ΔG_t	-0,191*** *(-0,073)*	-0,268* *(-0,146)*
	$\Delta REER_t$	-0,065 *(-0,120)*	0,108 *(-0,104)*
	$\Delta R_{\$t}$	-0,026* *(-0,013)*	-0,032*** *(-0,010)*
	y_{ct}	-0,122*** *(-0,046)*	-0,181** *(-0,082)*
R-square	**R2**	***0,875***	***0,962***
	Durbin-Watson test	***1,66***	***1,922***

Note: A (*),(**),(***) are the signs of the 10%, 5% and 1%-os significance levels.
Delays applied in the case of the 6th equation: NEX is 2, while the CPI and yct is 1 period. In the 7th equation it is 1 for the REER, RR, CPI andy_{ct}, while NEX is 3 periods.

In addition to the high R-square, the applicability of our model is reinforced by that a considerable proportion of the coefficients received in the case of regressor variables is significant. By 10%

the liberalization of the capital account in addition to the 1996 opening of the current account. In the light of the continually increasing inflation concerns, in summer 2010, after a 2-year break, China changed over again to the crawl-like exchange rate peg from the de facto fixed exchange regime. This may be the first step on the way to eliminate the restrictions on the capital account items. Gábor's (2010b) article contains a more detailed description about the historical development of China's capital controls.

[28] The increase of a country's trade openness increases the possibility that the capital evading the capital control flows in and out of the country through the items of the current account, for example by over- and undercharging (Prasad et al., 2005; Xie, 2006; Goldstein et al, 2008). Ma and McCauley (2008) pointed out, in addition to over- and undercharging, how both the foreign and the Chinese investors could evade the strict controls through the current incomes and current transfers in the past years.

significance level, the multiplier, the net export, the government expenditures, the USD yields and the cyclical GDP have a considerable effect in both cases (in addition, the required reserve rate in the 6th equation).

The increase of the multiplier and the price level bring about the negative movement of the result variables as we assumed. In the case of inflation, we used one-period delay in both equations. It was needed because both the foreign investors and the central bank can react effectively to the changed inflation environment after one period passed. In addition, the change of price level has a much more direct effect on the net foreign assets.[29] The coefficient of the required reserve ratio also met the expectations for the most part. The ΔRR has positive significant effect on the ΔNFA dependent variable – i.e. the increase of ΔRR causes ceteris paribus the increase of ΔNFA, which can be explained by the strengthening exchange rate expectations embodied through the rising yield levels. On the other side, however, the RR has a negligible effect on the central bank assets.

A significant effect can also be observed in the examination of the effect of the cyclical income and the USD interest rates on the dependent variables. The increase of the American money market yields reduces the amount of the incoming capital on the one hand, and it results in restriction measures on the part of the central bank.

In the case of the positive deviation of economic growth (y_{ct}) from the potential output, the booming import demand – and through it the deteriorating current account balance – generates decrease in foreign exchange reserves. The response of the economic policy to the increase of the output gap is also significant, since the overheating of the economy is followed by restriction measures. In both cases, the effect intensifies with the shift of a period. We consider that the cause of this "slip" in the latter case is that exact statistical data series which form the basis for economic planning and implementation are available for the decision makers only with a delay of some months.

A similar delayed response-reaction can be observed in connection with the increase in net export income. The coefficient of NEX induces the mild positive change of foreign exchange reserves in the case of a two-period delay, while it causes the significant negative change of central bank assets by a three-period delay. We assume that the cause of the above shifted temporal reaction is that while the data series published by the IMF IFS and used in the model provide the registered trade transactions, the financial compensation of transactions is settled only at a later date.

In the case of the increase in budget expenditures, we found that both the monetary policy and the investors respond with restriction and withdrawal of capital in the same period. This effect is significant in both cases, but it is considerably stronger regarding foreign exchange reserves.

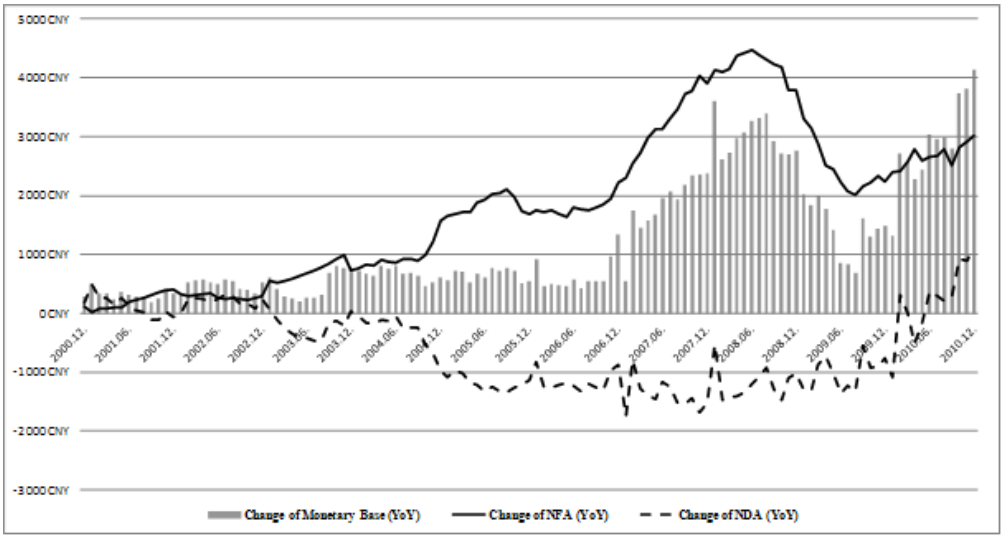
The change of real effective exchange rate has a positive effect on net domestic assets, as it was expected. The monetary authority responds to the excessive strengthening of the yuan real exchange rate with easing. However, its effect on foreign exchange reserves is dual. While the strengthening real exchange rate causes the decrease in foreign exchange reserves in the first period through the deteriorating current account, in the case of one-period delay it results in the increase in central bank reserves. Our opinion is that it may explained by the foreign investors' slower reaction time and caution.

[29] We must note, however, that the inflation does not have a significant effect on the result variables! The result must be handled with proper caution.

3.1. Sterilization on the level of broad monetary supply

The outlined methodology examined the effectiveness of sterilization in terms of the monetary base. Using a regression technique we established that the authorities neutralized nearly 94% of the liquidity increasing effect of foreign capital inflow on the level of the monetary base.

Figure 4: Sterilization on the level of monetary base: the change of the NFA and NDA assets and the monthly growth of the monetary based on year, billion yuan



Source: People's Bank of China

Figure 4 demonstrates the change of the NFA and NDA assets and the monthly growth of the monetary based on year. It can be observed that the monetary base shows an accelerating growth in the two years preceding the global financial crisis and since the beginning of 2010. In our opinion, this dynamics can be explained by the following factors.

First of all, since the second half of 2006 the monetary authorities has put a greater emphasis on required reserve policy in order to stem the increase in monetary supply (M2). As a result, the required reserve ratio, standing on 7.5% for a long time, was doubled within less than two years. Since the rise of the reserve ratio entails the increase in the central bank deposits of commercial banks in certain cases, these changes may partly account for the growth of the monetary base.[30]

Secondly, it seems that the role of the sterilization bond auctions has diminished recently. The total stock of sterilization bonds reached its culmination of 4.800 billion yuan in October 2008, which then decreased by more than 20% in two years. Figure 2 illustrates this weight shift, and it can be observed that the ratio of bonds to the central bank reserves exceeding 40% has been reduced to 18% by today! It may be explained by the objectives of interest policy. If the central bank systematically increases the required reserves ratio, it results in the desiccation of the interbank market liquidity and in the increase

[30] The rise of the reserve ratio increases the monetary base if the commercial banks produce the cover of additional capital demand by releasing central bank bonds or by selling foreign exchange. The rearrangement of the central bank's excess deposits does not entail the increase in the monetary base.

of market yields.[31] In order to avoid it, the PBC renews less expiring bonds parallel with raising the reserve ratio, thus the released sources produce the cover to fulfill the greater reserve expectations.[32]

The third reason is to be searched in the credit expansion. The new credit amount, swelling explosively since the second half of the decade, would have caused monetary base increase even without the increase in required reserves. Although the global financial crisis has not affected China to the same extent as it affected the developed countries due to its unique economic system, the "credit taps" of commercial banks have been turned on even more intensively in order to ease the recession concerns caused by narrowing export markets and the sudden stop of global lending and at the same time to stimulate internal demand. The bank system produced twice as much new credit in 2009 (9.600 billion yuan) and half as much again in 2010 (7.950 billion yuan) than in 2008.

The *fourth* factor accounting for the monetary base growth is the change in the other liabilities of the monetary authority balance sheet since the second quarter of 2009.[33] As the result of the sharply decreasing other liabilities, the net domestic assets (NDA) had increased by 1.100 billion yuan by December 2010 based on year (Figure 4). We think that the monetary base growth lasting since the end of 2010 can be mostly explained by this change. Since the PBC does not publish data regarding the composition of the other assets and liabilities, the causes underlying the fluctuation of the other liabilities cannot be established.

In the light of the bias of the sterilization policy, it is not practical to examine the effectiveness of the excess liquidity neutralization merely on the level of the monetary base. With required reserve ratio and window guidance policy, the central bank is also able to moderate currency oversupply caused by foreign exchange inflow in the broader dimensions of monetary aggregates. In the case of the former, it can do so by decreasing the money market multiplier and in the latter by defining the credit contingents. Taking all this into consideration, we examined the factors forming the M2 monetary aggregate on the basis of the above described variable set with the help of a simple OLS model. Although the received explanatory force (R2= 47.6%) is not specifically strong compared to the values received in the case of the previous regressions, its output is still can be suitable to draw some conclusions with certain reservations.

We involved the values of the estimated beta parameter in the M2 regression equation as well:

$$\Delta M2 = 0.180 *** + 0.584 ** \Delta NFA_t + 0.973 *** \Delta mm_t + 0.302 ** \Delta RR_t - 0.077\Delta CPI_{t-1} + 0.053\Delta G_{t-1} + 0.053\Delta SZSE_t + 0.529\Delta REER_{t-1} - 0.153 *** \Delta R_{\$t} + 0.008 y_{ct} \quad (8)$$

The low explanatory force and the lower number of the significant variables can presumably be traced back to that the relationship between the M2 and the monetary base is not stable![34] The reason for this

[31] The uncontrolled increase in yield is a delicate area for the PBC because it further intensifies the already quite considerable revaluation pressure.

[32] The bond auction was suspended two times in the first half of 2011 – in February and in June – by the PBC due to the excessive narrowing of the money supply caused by increasing required reserves ratio and to the rising yields. Source: Xinhua: China's central bank suspends bill issue, 23.06.2011.

[33] The value of the net other assets increased between January 2001 and April 2005, then it had reached the lowest point of -2.010 billion yuan by April 2009 as a result of the greater increase – 2.600 billion yuan – of the other liabilities. In the next 15 months, however, the balance of the net other assets became positive again as a consequence of the drastic decline of the other liabilities.

[34] The ratio of M2 and MB is considerably depends on the portfolio-allocation decisions of the real economic actors, on which central banks have only a limited influence.

can be partly that the central banks link their operative objectives to the development of monetary aggregates very rarely.[35]

The *M2-sterilization coefficient* of the ΔNFA takes on a value of 0,584 by a significance level of 5%. Accordingly, the increase of 1 unit of the international foreign exchange reserves resulted in the increase of M2 by 0,58 unit, i.e. the central bank has sterilized only 42% of the foreign capital inflow successfully during the last 15-year period on the level of M2 supply. The multiplier and the American yield level coefficient took on the expected significant direction. In the case of the required reserve ratio, we received a negative value only in the second differential. The higher reserve requirements through the narrowing of the lending latitude of banks cause the reduction of M2 one period later. The inflation, the government expenditures, the stock index, the real effective exchange rate change and the cyclical income do not have significant effect, but they took on the expected direction according to the above description.

As a summary, we found that the central bank has neutralized the rapid increase in the foreign exchange reserves which has been experienced in the past one and a half decades in nearly 94% in the case of the monetary base but only in 42% on the level of the M2.

4. The costs of monetary sterilization

The practice of economic policy outlined in the previous section and the maintenance of the strictly managed exchange rate regime entail serious costs. The increasing foreign exchange inflow in the past decade is responsible not only for the accumulation of foreign exchange reserves, but also for that of the central bank sources serving the sterilization. The interest burden of these steps can be reduced by the income on the foreign assets, mostly on the American government bonds.

The main components of the costs of monetary sterilization are the interest payments on outstanding bonds and on the central bank deposits deposited as required reserves. The short-term repo transaction has also appeared recently in the sterilization toolbox of the monetary policy, but we did not take its related costs into consideration due to its low proportion within open market operations.

In what follows, we try to provide an answer to the question on how much explicit cost the neutralization of the monetary oversupply involves for the monetary authorities by estimating the direct costs[36] of monetary sterilization and the yields earned on foreign exchange reserves.

4.1. The interest burden of sterilization

In the knowledge of the bond yields of different maturities and the composition of the stock, the interest payments on the sterilizations bonds can be calculated. The interbank market yields of the 3- and 6-month and the 1- and 3-year sterilization bonds (hereinafter referred to as CBB and *central bank bond*) have been available since September 2005 from the Bloomberg LP database. As we started the

[35] The ultimate aim of the PBC – similarly to most central banks – is to maintain the purchasing power of currency.

[36] If we took account of the indirect costs which do not occur for the central bank as explicit expenditures, we would have to take account of the costs charged to the society by the banks due to the high reserve ratio, the exchange rate loss caused by revaluation and the cost of the higher inflation resulting from the exchange rate management.

time series analysis from April 2003, the first CBB bond auction, we calculated with the yields of the 1-year Chinese government bonds in the case of the period lasting until September 2005.[37]

It has been mentioned earlier that the PBC pays interest on both the required and the excess reserves. Since the level of interest payment was identical for both deposit types until 2003 and the yield gap between them did not grow to a considerable extent until the beginning of 2005, the reducing effect of the required reserve ratio policy on monetary oversupply remained ineffective in the first few years of the increase due to the rearrangement charged on the excess reserves. After recognizing it, the interest level of excess reserves was reduced, which led to reduction in the excess reserves.[38] Since November 2008, the central bank has paid an interest of 1.62% on required reserve deposits and 0.72% on excess reserves. Given that the central bank does not publish the breakdown of required and excess reserves, it is not possible to define the exact costs of the required reserve ratio policy. To deal with this problem, we determined a higher and a lower cost level, which presume the two extreme cases when the total central bank deposits consist of required or excess reserves. The interest paid on reserves is somewhere between the two values.[39] In the analysis on the cost of reserves, we relied on the data about the deposits of the deposit collecting financial institutions of the central bank balance sheet and the interest levels paid on required and excess reserves published by the PBC.

The assumed higher and lower level of the total sterilization costs of the monetary authority equal the sum of the interest payment received in the previous two methods (Figure 5).

4.2. The income of foreign investments

The cost of sterilization can be reduced by the income earned on foreign exchange investment. The quantification of this capital income is a great challenge, since the Chinese authorities does not publish the data regarding the composition of foreign exchange reserves. According to the literature, the foreign exchange reserves consist of mostly USD-, euro- and yen-based assets. The opinions agree unanimously that the decisive part of the reserves is denominated in USD. However, there is no consensus about the proportion of USD assets within the total assets. Scissors (2011) claims that this number is approximately between 58 % and 72%. With regard to China's decisively USD-based reserve policy, our analysis started out from that the entire foreign exchange assets are based on USD. The database of the U.S. Treasury helped us to choose the proper asset, where the data regarding the American government bonds kept by foreigners is updated on a monthly basis. It showed that China hold the 36.6% of the American government debt possessed by the overseas countries, numerically 1154 billion USD at the end of January 2011.[40] Taking account of the stock of 2847 billion USD of the Chinese foreign exchange reserves in December 2010, the proportion of the American government

[37] In the first years of open market sterilization, the 1-year papers dominated in the CBB auctions, thus we used the yields of bonds of the same maturity to replace the CBB yields until September 2005.

[38] Due to the interest level paid on the excess reserves, the average 4.5% excess reserves ratio in 2003 decreased to 1.9% by 2010.

[39] It is assumed that the real interest burden converges towards the upper threshold of the sterilization costs because the ratio of the excess reserves to the required reserves has continuously decreased since the beginning of 2003.

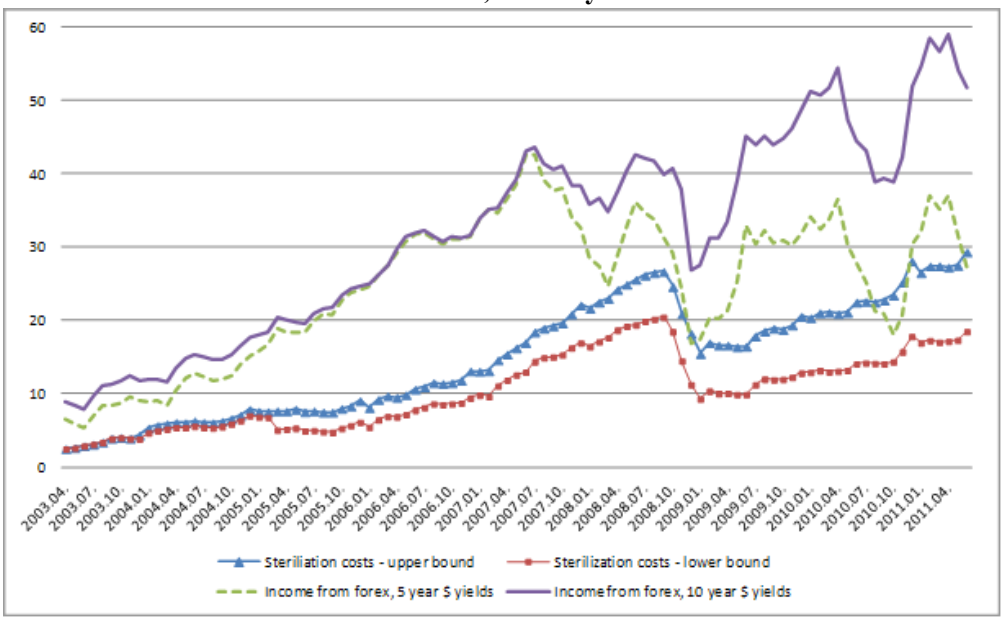
[40] However, the monthly data published in the system of the U.S. Treasury TIC is hardly realistic. In reality, the value of the American government bonds owned by China is considerably higher than 1154 billion USD. These data series do not contain the stock of approximately 250 billion USD, obtained through other intermediary countries. Furthermore, a stock of approximately 300 billion USD is also left out from this research, which was owned by China in two federal institutions of the American mortgage finance, in the Fannie Mae and the Freddie Mac in December 2010. Finally, a short-term debt and stock investment of 126 billion USD has also been left out of consideration. These shortcomings are supplemented by the U.S. Treasury in the annual TIC report. Accordingly, the value of the American assets possessed by the Chinese is estimated at 1611 billion USD on 30 June 2010.

bonds within the total exchange rate reserves can be estimated to 40% at the end of 2010. If we also take account of the government bond purchase completed through other countries and the stock possessed by other American federal institutions, this ratio increases to approximately 60%.[41]

Within the total American investments of China, the proportion of the short-term investment has been only an average of 8% in the past 8 years. Taking this observation as a starting point, we assume that the maturity composition of the central bank's foreign portfolio shows a similar tendency as in the case of the total USD assets possessed by the Chinese. Therefore, our examination started out from the 5- and 10-year American government bond yields. The yields were converted to domestic currency on the average monthly yuan-USD exchange rate, thus the incomes became comparable with the costs of sterilization. In addition, we assumed that the PBC does not capitalize the interest incomes, but it spends them on covering the sterilization costs. Taking all this into consideration, the average annual yield earned on the foreign exchange reserves was 3.32% for the 5-year and 4% for the 10-year government bond between April 2003 and December 2010.

Figure 5 shows the estimated monthly income of the PBC foreign exchange reserves and the tendency of the monetary sterilization costs between April 2003 and June 2011. Thanks to the exponentially increasing reserves and the – until the autumn of 2008 – increasing USD yield levels, it can be seen that the incomes covered the upper threshold value of the sterilization cost during almost the entire period.

Figure 5: The tendency of sterilization costs and yield earned on foreign exchange reserves, 2003-2011, billion yuan



Source: CEIC (2011), US. Treasury, Bloomberg LP

Note: In the case of the sterilization costs, the data of the first six months of 2011 are estimated values. We assumed that through the increase of interests paid on CBB bonds the costs of sterilization bonds increases with 33% annually, to the same extent as the average of the increase of 2010. By the constancy of the interests paid on required and excess central bank deposits, we prognosticated an average annual increase of 29% for the central bank deposits, observed during the entire period.

Figure 5 shows the growth of the gap between incomes and costs until autumn 2007. After this, as a result of the money market tensions caused by the American sub-prime crisis, the FED started an

[41] Source: US Treasury TIC, The People Bank's of China

aggressive monetary easing from the second half of 2007, which induced the decline in market yields. The effect of the globally decreasing yield levels spread in China in the last quarter of 2008, as a consequence of which the costs of sterilization reduced. With the escalation of the European sovereign debt problems, however, in the second half of 2010 and from June 2011 the profitability of foreign exchange-accumulation continues to decrease, which manifests itself in that the incomes estimated for the 5-year yields do not entirely cover the estimated upper threshold of the sterilization costs. It is further refined by the accelerating increase of the consumer price index experienced in the last year, in the light of which the further rise of the required reserve ratio is expected.[42]

According to our prognosis[43] developed on the tendency of the expected incomes and costs – until December 2014 – after June 2010 the upper bound of the sterilization costs exceeds the lower margin of the income earned on foreign assets to an increasing extent – by more than 40% by the end of 2014. However, the upper income level provides a proper amount of cover for the sterilization costs as time progresses.

We also examined a case when the majority of the Chinese foreign exchange reserves would be put in one- and two-year American government bonds. In such a scenario, the average yield ratio would be 2.4% and 2.6% during the entire period, as a result of which the incomes would not cover the lower bound of the sterilization costs already after March 2008.

In the analysis of costs, we cannot leave the fact out of consideration that China was compelled to book considerable losses on its American asset backed securities during the crisis, which certainly further increases the sterilization cost we outlined.

Assuming the exchange rate and the bond market yields at the end of 2010 to be constant in the future, the 41% decrease in foreign exchange reserves would be needed in order that the lower margin of the incomes touch the lower margin of the sterilization costs. Such a scenario, however, can hardly be imagined in the near future due to the current priorities of the exchange rate and trade policy.

In the analysis of monetary sterilization, we have so far quantified merely the direct costs of the measures narrowing the money supply. We have not taken account of the indirect costs which can be originated from the effects of sterilization policy that divert the money and real market balance. So for example the harmful effects of excess capacities caused by the undervalued yuan, the costs of high reserve ratio charged to the private sector, the extent of exchange rate loss due to revaluation[44], and the lower domestic demand caused by increasing foreign exchange reserves (Gábor, 2010c).

Apart from the indirect costs, we think the delusions that the monetary sterilization created unsustainable processes in the Chinese economy do not hold. At least it certainly does not hold according to the cost-benefit principle proper, since the capital income of the continually increasing foreign exchange assets has provided more than sufficient cover for covering the costs of monetary sterilization in the past decade.

[42] The required reserve rate has been raised by the central bank twelve times, with 650 base points to 21.5% since 2010. According to market analysts, with a rise of 50 base points, a money supply of approximately 350-400 billion yuan can be withdrawn from the market.

[43] During the extrapolation of the incomes, we regarded the American government bond yields of June 2011 to be constant, assuming the annual 32% increase in the foreign exchange reserves. In the case of the sterilization costs, we prognosticated an annual increase of 33% for the CBB costs, while 29% for central bank deposits. We regarded the yields paid on the central bank's required and the excess deposits to be constant.

[44] Although the exchange rate loss is not an explicit expenditure for the central bank, its extent cannot be neglected. In the two revaluation periods (2005-2008 and 2010-), the central bank had to book an exchange rate loss of approximately 2935 billion yuan.

5. The sustainability of the process of the regular foreign exchange intervention

In our research, we aimed to find out how efficiently the sterilization measures for maintaining the managed exchange rate regime neutralized the liquidity increasing effect of the foreign exchange-inflow and how much costs this economic policy practice imposed on the monetary authority. As the result of the 2SLS regression we carried out, we could observe that the central bank was able to neutralize the increase of the money oversupply with an almost total success on the level of the monetary base, while with half success on the level of the M2 supply. In the knowledge of today's accelerating inflation and the limits of sterilization, however, it is questionable whether the monetary policy will be able to stem the increase of the price level, one of the most frequent causes of social tensions, in the long term while maintaining the current exchange rate regime.

In the light of this, the question raised by many people on how a country which has an increasingly open economy and strives for great power status and – perhaps – key currency position will be able to maintain its strictly managed exchange rate system in a way that it meanwhile leaves increasing room for foreign capital and it remains financially open. The current stabilization-sterilization practice does not seem to be an unsustainable process, if we take account of only the explicit costs of the sterilization policy. However, if we also take the direct, social political costs into consideration, we get a completely different picture. Consequently, there is a need for the types of research which set the aim of the quantification of implicit costs in order to provide a more exact answer to the question on the sustainability of the Chinese sterilization.

6. China as the new financer of the European Union

The economic crisis of the 21st century has caused sharp changes in the geopolitical filed of the world. The greatest "beneficiary" of these changes and, at the same time, the unequivocal winner of the crisis has been the People's Republic of China. It is an unquestionable fact that due to the increasing weight of China, Beijing is gaining an increasing momentum in developing the frameworks of the global order. With the growth in the world political, global security and world economic position of the first great power of the Asia-Pacific region, it has an increasing effect on the international order.

In addition to gaining position during the crisis, the increasing world market role of the economy that has a huge internal market and record high foreign exchange reserves has done an undeniably great service to attenuate the hard-landing of the world economy and to mitigate recession. China's import demand, which has a significant volume also in global context, and increasing foreign direct investments were considerably revalued during the crisis. Despite the fact that before the occurrence of the crisis China was the greatest trading partner of the United States and the United States was that of China, and the largest trade flow was transacted between China and the USA, considerable changes occurred in terms of both trade and capital flows in the course of the crisis. The European Union was perhaps one of the greatest "beneficiaries" of these changes.

The revaluation of the European economic region for the Chinese can also be explained by that China's relationship with the European Union has been much less characterized by tensions than what we could observe in the American-Chinese cooperation.[45]

The first official trade agreement of China and the European Community was signed in 1985. Although the economic and political relation system of the two countries has been far from cloudless for the past more than two and half decades, the Union has all the while tried to take a tone towards China which is "softer" and more ready for compromise compared to the overly one-sided and strict American tone. However, the acceleration of the trade relationships can also be explained by that different competencies have come under the powers of the member states and that of Brussels. While the responsibility of the formers is the development of trade and economic relationships, the latter is responsible for managing the problematic areas such as human rights or the protection of the intellectual property right. The economic cooperation of the two countries speeded up by China's accession to the WTO in 2001 and the creation of the strategic partnership in 2003. Although after this, and partly because of the EU accession of the new member states, the dynamics of the trade relations of the EU27 and China continuously increased, these processes accelerated even more significantly during the crisis.

China's interest is the stability of the economy of the Eurozone and the European Union. This must be examined in two aspects; in terms of trade on the one hand, and in terms of investments on the other. The literature uniformly considers that nearly one fourth of the Chinese foreign exchange reserves of 3200 billion USD – approximately 700-800 million USD – is invested in euro assets (Scissors, 2011). The unsuccessful management of the European sovereign debt problem projects the decline of the European single currency and – in the most pessimistic case – the potential future disintegration of the European Monetary Union. In such a case, as a consequence of the negative wealth effect China would have considerable losses due to its European investments.

According to European estimations, China owned more than 7 per cent of the Eurozone's total debts in 2011, which tendency has continuously increased in the past period as well. Many claim that Ireland may soon be the next after Greece, Portugal and Spain (Szunomár, 2011). In 2011, the Asian giant appeared as a purchaser also in the state debt market of our country – in the market of both the forint based and the foreign exchange based bonds – as a consequence of which China had possessed Hungarian government bonds in the order of about hundred million euros by the summer of 2011 based on the data of the Government Debt Management Agency (ÁKK) (Portfólió, 2011; Index, 2011). According to the latest news, Beijing also considers purchasing bonds issued by the European Financial Stabilization Facility (EFSF), which provides the Union's financial support of the member states having serious financial problems.

In addition to that China gives help to the European states that struggle with troubles and external financing difficulties, it gains significant extra yields compared to the American government bond investments. Let alone it can reduce to an extent the tension originating from the "dollar trap" through the diversification of the foreign exchange reserves.

[45] Similarly to the EU, the United States continues to refuse China's market economic status, with the difference that the USA classifies China among the "non-market" state regulated economies – while the EU regards China as a transition economy. It means that the USA may adopt (and it does adopt) considerably stricter anti-dumping measures against the Chinese products than the EU – which is counted as very discriminative in the judgment of the Chinese. In addition, the States has kept Beijing under serious diplomatic pressure for almost a year due to the undervalued dollar exchange rate of the yuan.

However, it must not be forgotten that the European "spreading" of the Chinese foreign direct- and portfolio capital is not a good will and presumably not only business.

Increasing the European influence serves the growing great power interest of China. As the new financer and significant investor of Europe it thus moves in quite a good direction in these terms. Today European leaders queue up to China to share somehow in the gigantic foreign exchange reserves of the "Asian lion" – and they do it in a way that avoids the earlier conventional talks and instructs on human rights.

It seems that China gradually manages to soften the earlier solid opinion of Brussels in such delicate questions as the case of the "undervalued yuan", the concerns over human rights and the question of the weapons embargo to China effective since the Tiananmen massacre in 1989.

The cautious and "the small steps policy" type of attitude characterizing Beijing's foreign policy seems to come up to the expectations. The second part of the president of the republic Hu Jintao's reputed statement that "China's development is unimaginable without the world and the world's development also needs China" is becoming increasingly evident today.

Furthermore, the Chinese foreign exchange reserves which support several European states and finance European great investments (e.g. Polish motorway tender, construction of Italian and Greek sea- and Italian airport, etc.), in addition to increasing Beijing's European economic and political influence and returning considerable profit, they decrease the one-sided dependence of China on the USA, strengthen the euro and indirectly the multipolar world view in which the European Union is similarly interested as China.

Although the amount of the Chinese direct investment present in Europe – compared to other regions, e.g. the United States – can be regarded small today (in 2010 investment with a total value of altogether 6.7 billion euro), it has been growing increasingly dynamically in the past years – in 2010 by 17.5% compared to the previous year!)

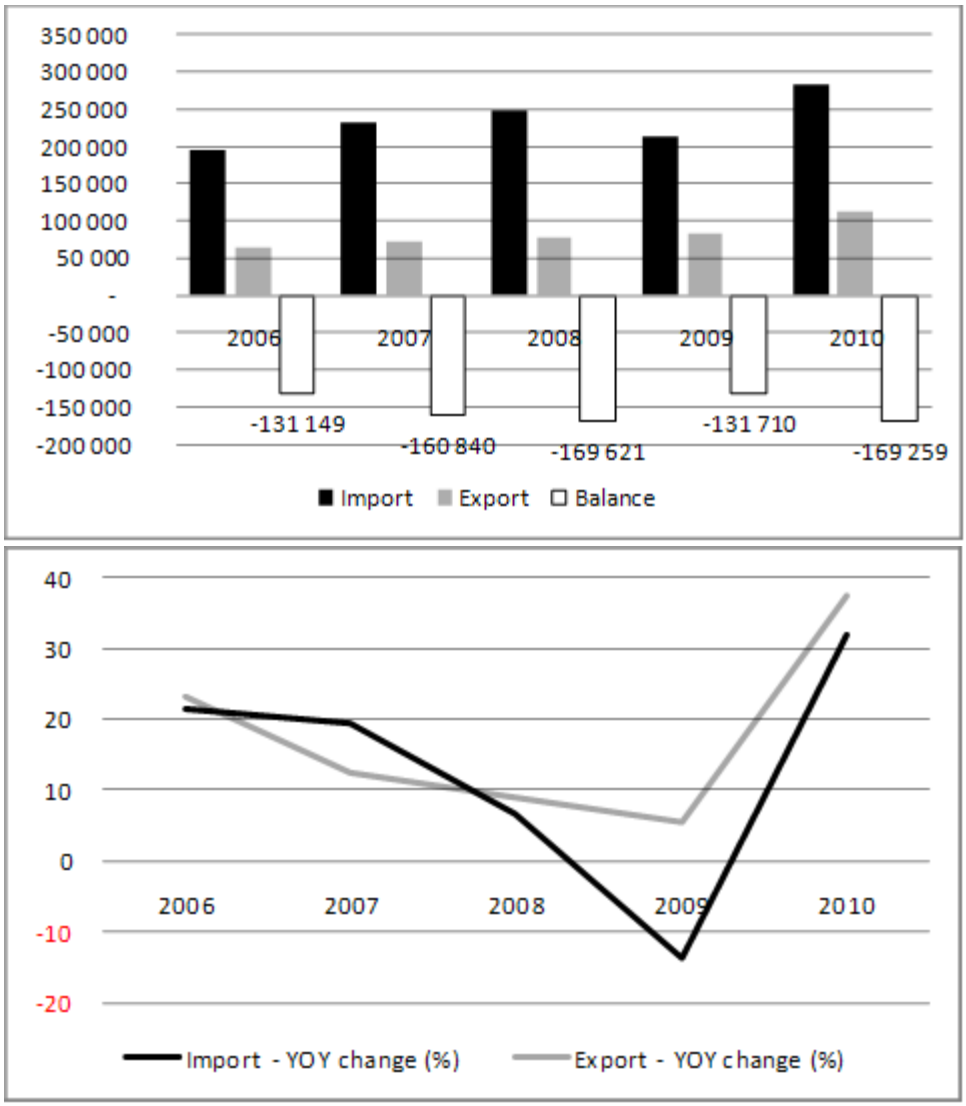
Contrary to the foreign exchange movements related to capital flow, the intensification of the relationship of China and the EU27 is even more visible in the field of trade. China could raise its participation in terms of both the Union's export and import before and during the crisis as well. According to the Eurostat data, between 2008 and 2010 China's participation in the total Union export increased from 6 to 8.4 per cent, while it increased from 15.8 to 18.7 per cent in the case of import.

During the years of the crisis, due to the even more intensive trade relationship between the two economies, the EU became the largest trading partner of China in 2010 China, while China became the most significant trading partner of the Union by the summer of 2011 (in both cases pushing the USA back to the second place). While in 2010 they transacted a trade of record high 395 billion euros, more by 100 billion euros than the previous year, in the first three quarters of 2011 the extent of trade already exceeded the 80% of the year 2010! Furthermore, it can also be stated that despite the fact that the EU's Chinese import demand significantly dropped back (by ~40 billion euros) in 2009[46], a trade balance deficit emerged again between the two countries in 2010 that reached the extent of the 2007-

[46] The decline can be explained by a dual cause. On the one hand, in the year mainly involved in the crisis and the real economic shrinkage, in 2009, the Union's internal demand extremely dropped back, which apparently has a significant effect on the EU's foreign trade, particularly on the import (Figure 1). *On the other hand*, the considerable decline of the euro compared to the USD, sometimes reaching 20% (compared to 2008), also caused the decrease in import. The euro thus considerably declined compared also to the Chinese currency fixed to de facto dollar, which made the Chinese import products more expensive through the exchange rate effect.

2008 (Figure 1) – which to some degree shadows the EU-China economic relations (similarly to the case of the USA and China).

Figure 6: EU's Trade Balance with China and the year-on-year change of its export and import, million euro



Source: EUROSTAT

Despite the exchange rate of the yuan that is considered undervalued, Europe's export towards China has been able to dynamically increase in the past two years, which has significantly facilitated the mitigation of recession of the European countries arranged to export. In the most serious year of the crisis, in 2009, Belgium, Portugal, Poland, Slovakia, Romania and Cyprus (and also our country by 17%) could increase its export towards China by more than 20% compared to the previous year (Inotai, 2011).[47] It must be emphasized because these countries that are relatively small and have quite an open economy – and they are exposed to the changes of the international demand – were unable (more exactly were not allowed) to stimulate the national demand with such gigantic Keynes-type government spending (fiscal expansion) as for example Germany or France did in 2009-2010 given the rising government debt path. Therefore, the declining domestic consumption could be to some extent compensated with the increase in export in addition to the moderate increase of fiscal

[47] And decrease exceeding 10% was registered in the case of only three countries (Slovenia, Luxemburg and France)!

expenditure. It was further helped by the devaluation of the euro and of the national currencies of the non-eurozone member states to the USD (and quasi the yuan).

The economic interdependence and trade symbiosis of China and America ("Chinamerica") by today has become a cooperation full of tensions that has made necessary for China to open towards other regions. The "Asian lion" gaining headway and influence, in addition to being a prospering business for China, decreases dollar-dependency, fosters building a multipolar world order, in which the European Union is also interested, and softens the opinion of Brussels in the issues that earlier caused tensions.

In the light of the economic relationships of the past years, it can be expected that the trade and investment relationships between the EU and China continues to flourish. Given that China's 12th five-year plan puts a great emphasis on intensifying internal consumption and decreasing export dependency, it can be expected that the trade disproportion developed between the two countries will be reduced and the European export will increase exceeding the import in the middle term.

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Convergence analysis: a new approach

Attila Gáspár

Economic growth and convergence is one of the most discussed fields in economics, as the long-run growth basically determines the welfare of countries. On the basis of neoclassical growth models, countries with lower GDP per capita will tend to grow faster than richer ones. However, convergence is not always confirmed. This means that economies are converging but the steady-state level is not always common, so countries may converge to different / own level of steady-states.

At the same time, the term 'convergence' can be interpreted by different ways. Therefore, multiple methods have to be applied to measure processes of convergence or divergence in a comprehensive way.

In this paper an indicator, called omega is presented in order to calculate convergence/divergence by a new approach. Omega is an adjusted weighted standard deviation of economic development (catching-up), which can be calculated on a single or multivariate basis.

The paper is organized as following. Section 1 briefly describes the definition and methodology of convergence. Section 2 outlines the model. In section 3 different types of convergence indicators are analysed and compared. Section 4 concludes.

Keywords: convergence, growth econometrics, growth theories

1. Introduction

Economic growth and convergence is one of the most discussed fields in economics, as the long-run growth basically determines the welfare of countries. Sometimes, it can be assumed that countries with lower GDP per capita tend to grow faster, than the richer ones. This process is called catching-up. However, the convergence process of lower income countries is not guaranteed. There are many factors leading to divergence: e.g. high level of net lending.

At the same time, the term 'convergence' can be interpreted in different ways, e.g.: catching-up to a reference value, decline of inequalities. Therefore, methods measuring convergence or divergence may also lead to different results. This also means that not only one but many indicators should be calculated in order to measure and analyze (e.g. determining time period for catching-up) convergence process in a comprehensive way.

2. Methodology

2.1. Definition of convergence

In economics the term convergence is used and defined in many approaches. On the basis of economic indicators several approaches exist: real convergence (e.g. GDP per capita), nominal convergence (e.g. interest rates) or structural convergence (e.g. agricultural employees). Maastricht criteria belong to the second group, while cohesion policy concentrates on the first one (Ferkelt and Gáspár, 2008).

In economics theory convergence can basically be interpreted in three ways:

- absolute convergence
- conditional convergence
- convergence clubs.

The term absolute or *unconditional convergence* (Barro and Sala-I-Martin, 2004) defines convergence process in a simple way. When economies are converging to the same level of steady state, unconditional convergence can be observed. It also means that disparities will diminish, as countries with lower income per capita are catching-up automatically.

However, there are many factors, which may lead to divergence. At the same time, countries with similar conditions, with same structural variables like savings, might converge to the same steady state. In this case *conditional convergence* (Sala-I-Martin, 1996a) can be confirmed. Countries with different structural variables will not automatically converge.

At the same times, initial conditions may also exist, which determine steady states. Economies, which have the same initial conditions, will only converge. In this case *convergence clubs* (Galor, 1996) exist.

The different types can also be mixed (Durlauf et al., 2004):

$$\lim_{t\to\infty} E\left(\log y_{i,t} - \log y_{j,t} \,\middle|\, \rho_{i,0}, \theta_{i,0}, \rho_{j,0}, \theta_{j,0}\right) = 0, \text{ when } \theta_{i,t} = \theta_{j,t} \quad (1)$$

Where

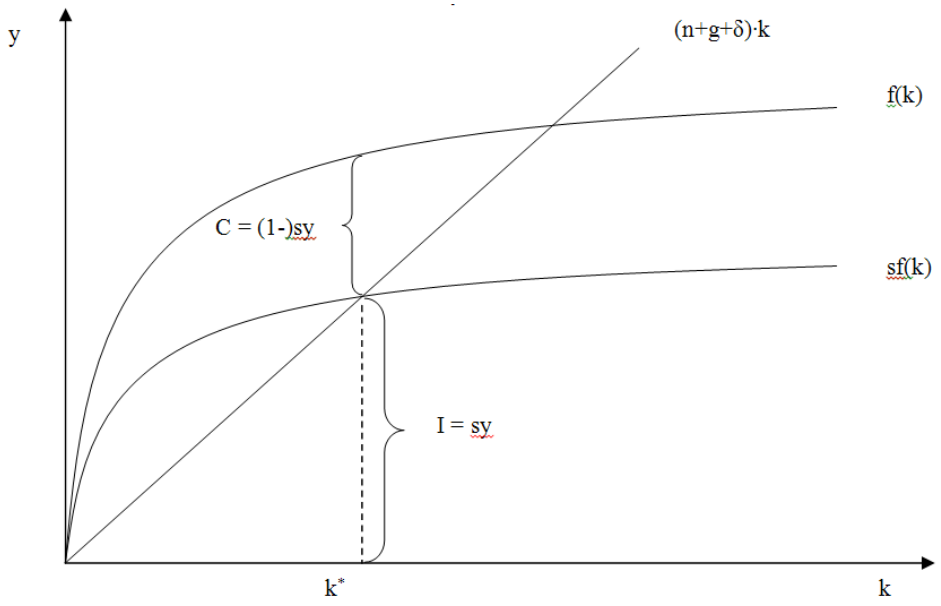
- i = observations
- t = time period
- y = measured variable (e.g. GDP per capita)
- ρ = initial conditions
- θ = structural variables

When equation (1) holds, convergence can be confirmed between observations when the initial conditions are also taken into account, however, the structural variables have to be identical.

2.2. Growth theories

Growth theories are connected to definitions of convergence, as well. On the basis of the Solow model (Solow, 1956) conditional convergence can be observed due to the diminishing return of capital:

Figure 1: Steady state in the Solow model



Source: Sorensen and Whitta-Jacobsen (2005)

Where:

- k = capital per effective labour
- y = income per effective labour (where y = kα)
- s = savings rate
- I = investment
- C = consumption
- n = growth of population
- g = growth of technical change
- δ = depreciation rate

This means that countries are converging to the steady state value of k* (and also for y*, as k basically defines y), where growth rate of k is zero: $k_{t+1} - k_t = 0$. The rate of convergence can be determined by linearization (Romer, 2006):

$$\dot{k} = \dot{k}(k) = sf(k) - (n + g + \delta) \cdot k$$

$$\dot{k}(k) \cong 0 + \left[\frac{\partial \dot{k}(k)}{\partial k} \bigg|_{k=k^*} \right] \cdot \left(k_t - k^* \right)$$

Where:

$$-\lambda = \left[\frac{\partial \dot{k}(k)}{\partial k} \bigg|_{k=k^*} \right]$$

And:

$$\dot{k} \cong -\lambda \left(k_t - k^* \right) \qquad (2)$$

And the speed of convergence:

$$-\lambda = \left.\frac{\partial \dot{k}(k)}{\partial k}\right|_{k=k^*} = -\left.\frac{\partial\left[sf(k)-(n+g+\delta)\cdot k\right]}{\partial k}\right|_{k=k^*} =$$
$$= -\left[sf'(k)-(n+g+\delta)\right] = \left[1-\alpha_K(k^*)\right]\cdot(n+g+\delta)$$

Where:

$$\frac{\alpha_K(k^*)}{1-\alpha_K(k^*)} = \frac{s}{y^*}\cdot\frac{\partial y^*}{\partial s} = \frac{k^* f'(k^*)/f(k^*)}{1-\left[k^* f'(k^*)/f(k^*)\right]}$$

This means that rate/speed of convergence (λ) is proportional to the difference from the steady state. Countries might converge fast, when they are far from steady state. This means that countries with lower GDP tend to grow faster, however, the convergence is conditional. Therefore, structural variables (savings rate, population growth, exogenous growth and depreciation) have to be identical, which is rarely the case, as developing countries usually have lower values of structural variables.

There are many extensions of the Solow model, e.g. by endogenizing the savings rate or capital mobility (Barro and Sala-I-Martin, 2004). However, in all of these models countries are growing at an exogenous rate of technical change in the steady state. This means the 'true growth' is not explained actually.

In endogenous growth models the technical change is endogenously determined (e.g. by human capital or social transfers) but usually no steady state exists, as the marginal product of capital is not diminishing (Sorensen and Whitta-Jacobsen, 2005). This also means that these theories lead usually to divergence.

2.3. Measuring convergence

On the basis of growth theories it cannot be decided, whether convergence or divergence can be observed, as the prior conditions basically determine not only the speed but the existence of divergence of convergence.

In empirical studies the results are quite mixed, they depend on the countries/regions/country groups, on data sources, on models and time period analysed. However, the hypothesis of convergence cannot be accepted worldwide (Durlauf et al., 2004).

It is therefore important to measure convergence process in a comprehensive way, and in the second stage growth models can be applied to analyse converge or divergence in detail.

Different indicators can be applied to measure convergence process on the basis of the definitions of convergence:

- distributional approach
- beta convergence
- times series approach.

Among *distributional indicators*, sigma convergence is widely used. Sigma stands for the standard deviation of log GDP per capita values. In case of convergence, sigma shows a negative trend in a time period. This also means that inequalities were diminishing.

In case of *beta convergence*, countries with lower GDP per tend to grow faster than richer ones. Both cross sectional and panel models can be applied, however, panel models will often provide more comprehensive results.

Time series analyses are mostly based of stochastic approaches like cointegration. If the differences of times series (or other liner combination) contains a unit root than we face an extreme type of divergence.

These methods may lead to different results, as they measure different types of convergence. Some of them are rather statistical (especially the times series approaches), while others are rather theoretical. This means that they might assume one steady state, or multiply ones (or none at all).

It can be argued that multiple indicators should be calculated as they have different characteristics and restrictions. Therefore, it may occur that some countries converge only in specific conditions and it is important to reveal these features. In the following section, an indicator is presented, which measures convergence process but may also deliver some new characteristics.

3. Omega

3.1. The baseline model

Omega is a modified, weighted standard deviation of cluster differences (Gáspár, 2010b):

$$\Omega = \sum_{j=1}^{n} \omega_j = \frac{\sum_{j=1}^{n}\sum_{i=1}^{n_1}(K_{Cji} - K_{Bji}) \cdot DEV(x_{jiB}, x_{jiT} | \alpha_{jiB}, \alpha_{jiT})}{\left| \sum_{j=1}^{n}\sum_{i=1}^{n} DEV(x_{jiB}, x_{jiT} | \alpha_{jiB}, \alpha_{jiT}) \right|} \qquad (3)$$

Where:

- K: cluster
- C: current period
- B: base period
- DEV: development
- x: real GDP per capita
- i: observation (country)
- j: group (country group)
- T: time period
- α: other (possible) weights.

The intention behind this indicator is to measure convergence as a catching-up process, while it also measures standard deviation. This means supplementary calculations (like how many years are needed for country X to catch up with Y) can be directly made and the model can be directly connected to growth models/theories. At the same time, it might be easy to build a multivariate statistical model in order to extend omega (e.g. it might help to identify growth factors).

In this paper only the main features of the indicator are presented. In the first stage, clusters are created from the values of GDP per capita from different countries. Clusters are needed in order to take into

account major rates of economic growth only. From these clusters differences (between a base and a current period) omega is measured.

The less developed the countries are and the higher the rate of economic growth is, the more significant the convergence will be. However, cluster differences should be weighted, as significant economic growth of developed countries should be interpreted as divergence, while for developing countries this case should be measured as convergence. The weights (DEV) can be calculated by different ways, for example:

$$\mathrm{DEV} = \sum_{j=1}^{n}\sum_{i=1}^{n}\left[\left(\frac{f_{jiB}\cdot x_{jiB} + f_{jiC}\cdot x_{jiC}}{f_{jiB} + f_{jiC}}\right) - \left(\frac{f_{B}\cdot \bar{x}_{B} + f_{C}\cdot \bar{x}_{C}}{f_{B} + f_{C}}\right)\right] \qquad (4)$$

where: f = number of population

$$DEV = \sum_{j=1}^{n}\sum_{i=1}^{n}\left(\frac{f_{jiB}\cdot\left[x_{jiB} - me(x_{B})\right] + f_{jiC}\cdot\left[x_{jiC} - me(x_{C})\right]}{f_{jiB} + f_{jiC}}\right) \qquad (5)$$

or:

$$\mathrm{DEV} = \alpha_{ji}\cdot\frac{1}{2}\cdot\sum_{j=1}^{n}\sum_{i=1}^{n}\left[x_{jiB} - \mathrm{me}(x_{B})\right] + \left[x_{jiC} - \mathrm{me}(x_{C})\right] \qquad (6)$$

where: $\alpha_{ji} = \frac{f_{jiB} + f_{jiC}}{2}$

There are significant differences among these weights presented in (4) to (6). In (4) development is measured as a weighted mean of the base and current period of population and income (GDP per capita). However, the distribution of world income is asymmetric, so calculating the median (instead of the mean) in (5) and (6) might be a much better choice. In (6) the values are weighted directly, which might the best choice, as the number of population is taken into account directly.

3.2. Restrictions and assumptions

There are some restrictions, which should be taken into account:

- *Significant differences*:

$$\text{If: } (K_{Cji} - K_{Bji}) = 0, \text{ for all ij} \qquad (7)$$

$$\text{Than: } \omega = 0$$

- *Optimal number of clusters (e.g. dendogram should be taken into account)*
- *Assumption of computability*:

$$\mathrm{DEV}(x_{jiB}\,|\,\alpha_{jiB}) \neq \mathrm{DEV}(\tilde{x}_{B}\,|\,\alpha_{jiB}) \text{ and } \mathrm{DEV}(x_{jiT}\,|\,\alpha_{jiT}) \neq \mathrm{DEV}(\tilde{x}_{T}\,|\,\alpha_{jiT}) \qquad (8)$$

where: for all $x_{jiB}, \alpha_{jiB}, \tilde{x}_{B}, \alpha_{jiT}, x_{jiT}, \tilde{x}_{T} \geq 0$; $\tilde{x}$ = level of development (e.g. median).

- Aggregation:

$$\Omega = \sum_{j=1}^{n} \omega_j \qquad (9)$$

(7) means that omega equals to zero for a certain country, when the economy is clustered into the same group in the base and in the current period. This also means that the country's growth was not significant (Gáspár, 2010a).

Omega depends on the number of clusters, therefore, these values should be optimal.

For all countries it should be decided, whether they are developing or developed ones (8). If that is not the case, omega cannot be calculated for that specific country (which might happen very rarely). However, if this is the case, more or less data (countries) should be used.

Omega might also be calculated for country groups and the main indicator can be created (9) by weighting.

4. Data analysis

4.1. Empirical analysis

In my previous studies (Gáspár, 2010a, b) significant differences was found among omega and other convergence indicators. In least developed and rest of world countries (mostly non-developed) convergence, while in OECD countries divergence was found. The speed of convergence is very slow; more than 100 years are needed for significant catching up. However, the rate of divergence of OECD members is much stronger than the rate of convergence in least developed countries. This means that on the basis of omega only partial convergence can usually be measured.

The sign of the convergence process differs often among indicators. This is due to fact that they might be biased, e.g. cross sectional regression might be biased because of endogenity. It is also important to note again that the term convergence also differs substantially. In many countries I found divergence on the basis of sigma, while on the basis of omega convergence was estimated at the same time. This is not surprising. Several developing countries had high growth, while others had only slow ones, which also means that the country group as a whole showed divergence as inequalities increased. However, on the basis of omega this may be interpreted as convergence, as some of the countries caught up, which had high weights (low income in the base/current period and/or high number of population), while others had only slow growth rates but had low weights (high income in the base period/current and/or low number of population). This might be an important feature of omega, as it is a standard deviation-type indicator while it also measures catching-up. Beta convergence might lead to the same conclusions but regressions especially cross sectional ones are often biased in growth equations. For that reason distributional approaches might provide better results but they cannot be conditioned easily. But as omega measures catching up it can be extended in a simple way in order to measure conditional convergence.

4.2. Monte Carlo analysis

In order to compare omega and other convergence indicators a more comprehensive analysis should be made. Statistical indicators can be compared in different ways. In inferential statistics estimators have

to fulfil different conditions: functions of unbiasedness, robustness, consistency and efficiency. However, the term convergence can be interpreted in different ways, therefore, the variable which should be estimated from the sample is not a fixed one.

For that reason Monte Carlo simulation is applied. Two samples are generated: a base and a current period sample on the basis of lognormal distribution (as incomes likely follow lognormal distribution). The sampling size is 200 for both periods, as approximately 200 economies exist in the world. The only difference between the two samples are the variance and the expected value, which are estimated from the sample mean and variance of real GDP per capita values from the Penn World Table for 1970 and 2007. The number of simulations amounts to 10000.

It is assumed that the samples are independent, which of course is a strong assumption, as the macroeconomic variables are usually autocorrelated. However, the aim of this simulation is to 'purely'/mathematically compare convergence indicators. This means that indicators might be better compared when autocorrelation is not taken into account. For the same reason, weights are not used and 10 clusters are applied for all simulations.

Table 1 illustrates in how many cases the indicators showed same results (convergence or divergence):

Table 1: Monte Carlo Simulation (%)

Indicator	Sigma	Beta	Omega
Sigma	100 (0)		
Beta	68 (1,416)	100 (0)	
Omega	50 (1,427)	50 (1,428)	100 (0)

Source: Author's calculations based on data of Penn World Table v6.3 (2010).

The table is – of course – symmetric. Out of 10000 simulations, in 6800 cases had sigma and beta the same results. Both indicators measure convergence but sigma measures inequalities, while beta calculates catching-up. It may happen that developing countries converge so dynamic that they become the developed ones, while inequalities remain the same. In this case these two indicators lead to completely different results (Sala-I-Martin, 1996b).

At the same time, only 50% of omega-convergence values had the same sign as sigma and beta. This means that omega may include important characteristic of the convergence process. Of course, a very low rate would also raise lot of questions, too.

However, only by the sign of convergence or divergence the indicators cannot be compared in a comprehensive way. It may occur that indicators have the same sign but the speed of convergence or divergence is completely different. For that reason, the values are normalized and the standard deviations are calculated from the data (which are shown in brackets).

Omega differs from beta and sigma in a stronger way that beta differs from sigma. But the differences of the standard deviations are not substantial.

5. Conclusions

The term convergence can be defined in lot of ways and for that reason convergence indicators may also lead to different results. In this paper a new indicator of convergence analysis is briefly presented and analysed. Omega is a modified, weighted standard deviation of cluster differences generated from GDP per capita values.

On the basis of a Monte Carlo simulation it was found that the indicator differs substantially from other types of convergence indicators. This could mean that some characteristics may exist in data which might include important information for the convergence process.

At the same time, differences of the standard deviations of the convergence indicators were not substantial. This can be interpreted as a feature similar to consistency. Different indicators may lead to different results. However, it is expected that in specific cases (e.g. substantial economic growth) they have similar results (if no special circumstances exist, like substantial country weights), which means that they should produce similar standard deviations. In this sense the indicator should be interpreted as 'consistent'.

However, all of the indicators contain important information. Therefore, for convergence analysis not only one but many indicators have to be calculated and compared. In the next stage growth or multivariate statistical models can also be built in order to detect and analyse growth determinants or catching-up rates in detail. Omega can be extended easily, as it measures catching-up, which is a common basis of comparison for growth models.

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The other side of the coin - The privatization phenomenon and realization of public welfare in a Single European Health Care System? A sketch from the perspective of the economic theory of law

Wilfried Janoska

The commonwealth cannot be equated with the state nor can the common good of society be sustained by government action alone. Rather, the activities of all members of society are crucial importance. Such private sector activities also define the development of national healthcare markets in the convergence to a single health care market in the EU. The desired result of securing reliable and socially equitable provision of the people was associated with considerable costs for responsible administrative units. Especially in times of weak economic activity, this led to a significant burden on public budgets. Thus, the disadvantages of state activities typically form the starting point for privatizations. The contribution is about the consequences of privatization in the area of public services, particularly public hospitals. It is based on the methods of economic theory of law and introduces the importance of the reservations of the "desired" and "feasible" towards the creation of a mandate to the EU in the health sector. Question is whether and to what extent the state is losing its influence on public health structures, and what consequences it can have, if the services are not permanently guaranteed by any other means. Such a transformation process raises the question whether the reversal of privatization, i.e. of a hospital, does fall within the remit of the EU. In the alternative, whether an obligation of the EU arises, to create a (buffering compensatory) framework for such community projects. The parallels are obvious to the financial sector.

Keywords: privatization/socialization, EU health care mandate, law and economics

1. Introduction

To enforce their public interests, purposes and objectives European Member States [1] influence the economy in many ways. One way is to fulfill the tasks by state agencies. The other is to influence economic activities by regulating private business activity. In some areas they themselves do business and often intervention is provided by public, i.e. state-owned enterprises. The public sector can influence these companies as a shareholder (see, e.g., through participation in the banking sector during the financial crisis), or due to any other rights, directly or indirectly exercise a dominant influence. For this purpose the Member States can use public capital, by investing in public or private companies or transform state enterprises into private ones. However, no enterprise has so far been nationalized except through an acquisition governed by private law (Lübke, 2010). In addition, they may only take regulatory action. Both aspects of state interventions and its effects are the subject of this article, which also includes the possible role of the EU as a regulatory institution with a guardian function.

In recent years, private sector initiatives in the state were increasingly viewed as a panacea to solve all the ills of government activities on the market-based forces. The Economist (2012, p. 11) recently

[1] The concept of the state is here understood in a broad sense. For Germany, for example, it includes the state union, the states and the municipalities.

noted about successfulness and consequences of state capitalism that “state agencies or state companies would use capital less efficiently than private ones, and grow more slowly”, and „as they have to produce ideas of their own they will become less competitive, and, in contrast, the world’s great centers of innovation are usually networks of small start-ups.”

Given the (current) global financial crisis although, this estimation falls to falter. Nevertheless, in the recent past it has shaped the general attitude towards private participation in the implementation of public welfare (Haarländer, 2007). This basic tenor of the privatization calculus dominates the debate in the law rather than a counterpart (Broß, 2007) that sees the integration of private forces as an uncontrollable risk.

However, the debate on the role of the public healthcare system in the state structure and its privatization has an important merit: It recalls that the state does not generally occur in the market as the owner of hospitals because he could provide better management with the same objectives (such as profit maximization). Rather, the state must combine his ownership role with a public mission, and this benefit must be offset against the potential costs. If public hospitals are doing exactly just that, private hospitals do, they should be subject to the same economic policy frameworks on the market.

In the field of general interest changes have an impact by shaping public companies or by influencing the economic policy at the state’s mandate of the supply of services. This is important cross-border and national among public and private services as well as between national institutions and their users. According to Slot (2011), the ratio of private and public sectors in Europe is characterized by various mixed situations in the Member States, because they define what they consider to be public interests: Such interests identify goods and services that are deemed to be so vital that government has to secure their provision; the provision of such goods and services constitutes a fundamental aim of government policies and legislation; general interests as goals are found in some of the constitutions of Member States, others wrote them down in legislation or basic policy documents. Thus, Member States have created a wide range of instruments to secure the provision of public goods and services as well as the conditions under which this should take place. The intensity, that is to say the degree of intervention in the market mechanism, of these instruments varies (Slot, 2011). Already at this point it should be noted that not all Member States share the same public interests, which are also not effected with the same instruments in each Member State, even if they follow the model of social market economy (Slot, 2011).

But, it is not a novelty in hospital care to involve private providers in the performance or financing of public services of general interest. A quarter of German hospitals are already in private ownership, and rising (Federal Office of Statistics, 2011). Also, medical services outside the core area are passed by many hospitals in the form of outsourcing to private providers. After all, the German hospital landscape has been under pressure for a long time. The tense situation of the public sector, i.e. the public budgets leads to the fact that the German federal states increasingly withdraw from their responsibility for financing hospital investments (Haarländer, 2007).

In this paper, the public hospitals and their current tasks are considered. First, the role of "public" and "private" sectors in health care is discussed. Then the “general interest “as a policy area of the European Union is striped. The EU also has to face new challenges.

2. The requirements and the demarcation of public and private sector

The health systems, funding structures and the healthcare markets of the European Member States are very different, just like their state organizations, their political and cultural traditions. Because of the events in the aftermath of the crisis and to try to determine the responsibilities of the state in free markets, one may first have a look at the guarantees were given by the state in the banking sector. In other words, the public authority in any market economy must first secure the conditions for the free exchange of products and services. Since this exchange is realized by means of money, the state must ensure that the money used in trade fulfills its task; otherwise the functioning of the market economy would be jeopardized. The role of the guarantor, the European Member States have played since 2008 in the banking sector, is one side of the coin and not durable when it comes to concerns of market, economic and budget terms (Triantafyllou, 2010). The problems of the banking sector have been "nationalized" with the takeover of their debts by the state, which could in turn result from the banking crisis to fiscal and monetary crises (Triantafyllou, 2010).

After this brief detour, however, it seems tempting to assign this position of guarantor on health care. It also appears useful if states could fulfill their public mandate by shifting higher government spending, such as economic inefficiencies, while displacing health funding to private providers in the market. It then recommends privatization of hospitals.

That said the starting point must be the nation-state perspective on the situation of public interest and pursuit of private economic activity. So, a look at the German constitutional law may be useful to distinguish public and private sectors in the discussion about the general interest in general and services of general economic interest in particular, especially from the perspective of the German welfare state in compliance with the principle of proportionality. This forms the basis of normative jurisprudence to arrive at normative economics (Janoska and Thöni, 2009)

2.1. Constitutional Requirements and the Requirement of State Economic Activity

With regard to the use of state-owned enterprises, the German constitution law [2] contains only a few restrictions. The basic law is characterized by economic neutrality, and does not favor the decision of a particular economic system, but it leaves it to the legislature to decide, within the context of other constitutional principles (Federal Constitution Court, 1954). This neutrality is particularly evident in the fact that the constitution makes no statement on the economic system in general or in particular to distinguish between public and private sectors. The state then contributes, in part because of the social state principle (Art. 20 GG), a fundamental constitutional responsibility for providing key infrastructure services in general (Möstl, 2011). In principle, this is fulfilled through regulation; the state does not have to provide the necessary services itself, but merely guarantee by law and administrative regulations an appropriate offer by private suppliers. As an intermediate result, it can be noted that the government is constitutionally required only to guarantee important services, but not to render them itself. Under current constitutional law there is neither public fulfillment of services of general interest nor an economic activity of the state in generally prescribed by the constitution.

2.2. The Boundaries of State Economic Activity and the Social State Principle

Conversely, the basic law allows a more extensive state economic activity. It does not reserve certain operations to the private sector. Nor, the state's economic activity is not constitutionally subsidiary to

[2] Basic law, Grundgesetz (GG)

the private economic activity. But the basic rights of private operators restrict the economic activities of government; the state should intervene only in accordance with the principle of proportionality (European Court of Justice, 1991a). These restrictions apply in general, not just about sector lines. The restrictions do not help, however, in the case of mere intensification of competition caused by addition of state competitors. If the government makes private economic activity impossible or unreasonable, especially in the case of public monopolies, private agents (actors) may raise court proceedings, citing the infringement of fundamental rights. At this point, the rationality requirement of the law by the principle of proportionality is realized (Führ, 2002), that is therefore perhaps better translated into the privatization discussion with the prohibition of excessiveness or rule of reasonableness. It can be embellished as a highly rational assessment program that includes a legal test sequence, which is addressed in the core to undergo the relation between the intended purpose and the means used to a rationality test: anyone who is exposed to this test appears to itself as to be disciplined by substantive law, because his approach is clamped in a means-end relation (Führ, 2002). The law goes back to a formal principle, the intention to optimize the end-means relation and a restriction on the use of funds to the level of just what is necessary to fulfill the purpose (Führ, 2002). The optimization intention is the interface to the economic theory and touches on the economic principle of efficiency. The efficiency principle also applies to the means-end relation, and therefore is aimed to achieve the most favorable ratio of these two quantities; its mission is to provide an objectively legitimate use of social resources (Führ, 2002).

2.3. General Interest and the Public Service Mission of the State

The economic principle is to be observed also in healthcare. Its two variants can be described as optimizing or maximizing utility use. In the maximum variant it is about ensuring a given allocation of resources to the highest possible level of achievement. This is the rule for optimists, because one opts for the alternative that brings the greatest benefit. In the minimal variant a given goal shall be realized with a minimum of resources. It is the decision of pessimist and goes out of maximum security against disappointment. People choose the variant that brings in the most unfavorable condition the highest profit. So, one decides for the best of the worst situations and alternatives.

One can look at health economics as an application of economic methods to the needs of healthcare. If one does, it has to be critically examined whether transferability of the results into practice is given. The reason lies in the fact that possible extreme experiences related to diseases do not allow the unchecked transmission of economic methods. Rapid changes of preferences without equally rapid reaction of markets, the importance of high standards for healthcare providers and a far smaller scale survey of the empirical basis for decisions, Lauterbach et al. (2010) say, stand for the fact that economic models may not (or perhaps should not) achieve the effects, as they do in other sectors. But, for the political decision on whether a health system should be performed privately or publicly, it cannot matter what diseases should be treated. Then the problem is that the observed economic phenomena of a health system with its single components must be analyzed in the context of its manifestations, processes and consequences. For, if it is not possible to approach a kind of infrastructure for the health market, worsens the damage caused by unexpected events and hinders the reliable performance.

2.4. On the Debate about the General Interest and its Fulfillment

A basic discussion of the distinction between public and private sector in Germany is part of the privatization debate, especially since the 1990s of last century. For example, the privatization of state holdings should serve the one hand, fiscal consolidation, on the other hand, however, create jobs and stimulate competition and lead to a new division of responsibilities with the necessary changes in the

relationship between public and private sectors (Federal Finance Office, 2000). As part of a comprehensive modernization of the state, the state should withdraw from entrepreneurial activity and be active rather than where private initiative can at least fulfill these tasks equally well (Federal Finance Office, 2005). Accordingly, in Germany the corporate industrial involvement of the federal government or a single federal state requires an important state interest, which will be reviewed regularly. Naturally, this assessment is subject to changes because the economic environment is constantly changing.

Parallel to the ongoing privatization process, the question of its limits emerges. In recent years, privatization and privatization projects have repeatedly failed to achieve the desired effects. The question of the limits of privatization is linked to the concept of general interest: Against the background of the social state principle (i.e. Articles 20 (1), 28 GG), the state has to vouch for the fact that, in economic terms, private suppliers cannot provide coverage of services everywhere, although it concerns services which the individual needs essentially "to secure a decent livelihood" (Federal Constitution Court, 2008).

Services of general interest can be either market-related or non-market-related (European Commission, 2000), depending on whether the service is marketable or excluded by the nature of things. Due to their autonomy the municipalities provide the services to a large extent. According to traditional understanding the general interest includes the supply of energy and water, waste and sanitation, public transport, the basic provision of public broadcasting services, post and telecommunications, but also community facilities as non-economic enterprises such as saving banks, hospitals, etc. It was initially accepted that the state should provide these services itself, e.g. in Germany for saving banks and hospitals because of their common roots as non-profit state agencies with the purpose of caring for the poor (Matschke and Hering, 1998). Meanwhile, the consequence out of an assignment of a service to the field of general interest is only that the state has to ensure that it is provided and that the services of general interest work purposively (public service obligation of the state, public order). Due to the guarantee of local autonomy the communities may be allowed to get rid of the affairs of the local sphere by transmission to any third party. Nevertheless, it may not be complete instead they must retain their influence and control options to keep coping tasks. As another interim result can be stated that the general interest is located at the level of self-organization and self-management which can be viewed as essential characteristics of the commons (Orstrom, 2011).

2.5. The European Union’s Concept of Services of General Interest

The range of services that citizens need to guide their life-style has played a major role in the states of the European Union in political, economic and cultural aspects. Although, the importance of general interest considerably varies from the view of the different traditions of one Member State to another, the European Commission (2000) qualified the existence of such general interest services as part of a true (and total) European social model. Unlike in other parts of the world, all European countries were concerned with facilitating the conduct of individuals, which is inevitable in modern societies and goes beyond the nation state territoriality. Brenner (2009:3) sees the reasons ”by the intensification of interspatial competition between urban regions; and by a growing differentiation of national political space among distinctive urban and regional economies, each with their own unique, place-specific economic profiles, infrastructural configurations, institutional arrangements, and development trajectories”. These efforts occur mainly in the form of state economy, partly as a market organization within a normative framework. The “external” European environment offers the single Member State even though no external frame, on which he could line up. The comparison in the transnational field between Member States is predominant here. The recorded matters affect traditional infrastructures

and their use in the areas of water, energy and transportation. More recently, technological and demographic changes evoke new challenges and force to develop new solutions. However, they are not questioning the basic approach that provision of services is up to the free market and the market forces. Consequently, in the words of Flecker et al. (2011), who emphasize the importance of regulation to liberalization and privatization, "to ensure access to affordable high-quality public services for all", describe liberalization as a process that "aims at building competitive market structures, in which many providers compete with each other in an integrated and easily accessible market" (Flecker et al., 2011). The primary European law reflects this special situation, since the Treaty of Rome (Majone, 2005). Already in the original version of the Treaty of the European Economic Community (EEC) the exception for services of general economic interest was provided (cf. Article 86 (2) EC Treaty). The European law applies not to such services, as far as it would act as a disincentive.

Following the Amsterdam Treaty, the Treaty of Lisbon turns out clearly the importance of services of general economic interest. The changes of the contractual basis are showing both the common interest of Member States and the EU as well as the high political relevance of these services of general interest, but without establishing a specific level of performance determined in normative terms. With coming into effect the European Charter of Fundamental Rights (ECFR) adds the objective guarantee of the Treaty on the Functioning of the European Union (TFEU) and the Protocol on services of general interest to a subjectively legal dimension in European law. The concrete expression seems not to correspond with the apparent character of article 36 ECFR as an entitlement. With the initial award of a directly relevant legislative competence for the EU, the general interest and its equivalents from other Member States was finally established at the European level (Knauff, 2010). Despite this, and even if the initial creation of a competence base for the EU lead to tensions in the area of general interest, the Treaty of Lisbon strengthens the possibilities for Member States to reach independent decisions in the area of public interest. The frequently emphasis on the primary of Member States' de facto design strengthens particular traditional structures that can be looked upon as far from the market. Also, the explicit recognition of the local self-government as the dominant element of the national identities of Member States at least strengthens purely argumentative the keepers of traditional performance models. Hence, the Treaty of Lisbon makes it easier to maintain traditional Member State structures for the provision of basic services (Knauff, 2010). A high level of commitment by the state in the provision of services of general interest is not only still possible, but also protected in a special manner from access by European law.

Whether a certain approximation is done in the future on the basis of Article 14 TFEU for the provision of basic services of the legal framework cannot predict. Because of the failure of efforts to agree on a framework directive on services of general interest a rapid use of the newly created basis of competence by the EU seems unlikely (Knauff, 2010). The importance of the innovations by the Treaty of Lisbon, which relate to the public services, directly or indirectly, is therefore not primarily legal, rather than political. The commitment of the EU and the Member States, which is evident from the rules and their normative integration, about the need for high quality and citizen-oriented services of general economic interest as part of a social Europe (Hantrais, 2007), significant performance deterioration cannot appear in Europe as a viable option. From the design freedom of the Member States is to be concluded that the traditions of service delivery should have its own value at the national level. However, a reorganization of the provision of basic services is possible. The Member States function, so to speak, as experimental laboratories for the development of task-appropriate concepts. In the competition between systems best solutions may arise. Such a meta-system could eventually be reflected in the European framework regulation on the basis of article 14 TFEU, and the

union citizens who (have to) use the services of such competition could be winners (Knauff, 2010). Articles 14 and 106 TFEU include the notion of services of general economic interest within the meaning of EU law, according to the understanding of the European Commission (2000), which is only a subset of the performance of general interest, namely the market-related services. Preconditions for the existence of a service of general economic interest is that it is not provided in the private interest of individuals or groups, but in the public interest (European Court of Justice, 1991b). Furthermore it must be an economic activity. Meanwhile, the Union law contains no precise definition. Instead, Member States shall determine what has to apply as a general economic interest. The member States may therefore designate certain services as services of general economic interest (European Court of Justice, 1993). This allows them to privilege enterprises which are preoccupied with such services by EU law.

This can be transferred to public hospitals. Public hospitals can provide services of general economic interest, e.g. by restoring the health of workers and employees. They ensure this task by spatial covering the needs of the population with health services and coping with the growing demand for ever higher standards of health care.

3. Methodical framework – Economic methods of assistance

3.1. The Range of Law and Economics and the Economic Analysis of Legal Institutions – the Design of Regulation

As Posner (2007) outlines, the concept of economic analysis of law is the general application of economic theory to various fields of law, including the associated policies. With the application of the economic analysis of law therefore also apply the new institutional analysis with its subfields of agency theory (Jensen and Meckling, 1976), transaction cost theory (Williamson, 2010) and the property rights theory (Alchian and Demsetz, 1972), the approaches of political economy (Stilwell, 2006) and the constitutional political economy (Brennan and Buchanan, 1993).

The aim of the economic-legal-institutional analysis (Bizer, 2002) is to give the legislature an aid in the design of regulatory instruments. For this it uses the economic model that allows instrument-specific impact analysis. Given that there is any proposed legislation project, it requires the legal review of proportionality with its three criteria appropriateness, necessity and reasonableness. In that case, the connection of proportionality and the rational choice theory appears as the cross disciplines normative link of the legal-economic institution-analysis (Bizer, 2002); as a methodical bridge between law and behavioral sciences (Führ, 2002). Who wants to design and apply legal standards relies on behavioral science as an empirically based “real science”. On the basis of the evaluation of expediency the economic principle and the principle of proportionality proves to be the lowest common denominator of interdisciplinary normative understanding. Economics provides the basis for a behavioral model that is based on the rational-choice-theory and also considers influential institutions as preference and decision-making limiting factors and thus embeds the individual in its institutional environment (Bizer, 2002; Führ, 2002). From there it is almost inevitable, in reverse, to move from the individual utility maximization on questions of utility maximization of whole societies (Brennan and Buchanan, 1993).

3.2. The Privatization Phenomenon and Rational Choice

Since ancient times, it is said that man should be guided in his decisions and his actions of sense and reason. The modern version of this maxim is the doctrine of rational action, or rational choice theory.

According to this theory, man is in his decisions and actions as economically as possible, by making a thorough cost-benefit analysis and is guided by the principle of profit maximization. In other words, he tries to reach with minimum effort for maximum success, benefit or pleasure. For this he uses appropriate calculations, a so-called benefit calculus that shows him how he is going perfectly in achieving his goals. Such an approach is regarded as rational. Conversely, a behavior is viewed as irrational, which seeks to achieve an existing goal with incorrect or inadequate resources, or at the wrong place at the wrong time and therefore achieves a suboptimal result.

Preconditions for rational action are, firstly that he knows exactly what he wants or will do at first, and knows what he wants or will do if the first target is not feasible or has already been reached (i.e. if he has an order of preference); secondly, that he has alternative courses for action (i.e. if he has no choice, he does not need to optimize); and thirdly, that he knows the probabilities of events he must take into account (Braun, 2010).

The rational choice theory says something about the most appropriate approach, but nothing about the rationality of goals, i.e. it tells how to decide the best way to achieve certain goals, but not whether the goals themselves are rational (or justified). Weber (1922) created the term “purpose-rationality”, referring to a sober, rational pursuit of achieving a goal that is not clouded by error or strong feelings. He has distinguished the rationality from the so-called value rationality. According to Esser (2002), this means that each actor is confronted with a clearly defined set of alternative courses of action and both clearly have a defined, consistent and complete preference order for all possible situations that could occur through their actions. Furthermore, assumed is that every agent of all future events can assign a common and consistent distribution of probabilities for which he then selects the alternative that, if one exists, maximizes the expected utility formed out of the preferences and probabilities (Esser, 2002).

No man can know exactly all the details of knowledge that are necessary for optimal decision of a complex problem. So one cannot figure out exactly how the health care market develops in a region. Only experience can be starting position, and actors are not completely preserved in front of a letdown. One can only know exactly the intensity of use, not even assess the development of demography, because this is determined by the policy (particularly in health policy and economic policy) in addition to the incalculable risks of global and technological progress. Something else may apply if the public order of the state can be included in the calculation as a reliable date. After all, and out starting a supply order of the state as an expression of the social state principle, interference potentials of action of the state are given. This is irrespective of whether he is acting as fulfiller or as guarantor.

Once there are gaps in knowledge, constraints of time and material costs, and legal limitations, there are also limits to the rational approach. This leads to the concept of bounded rationality. Simon (1955) has criticized the neoclassical paradigm and emphasized the impossibility of living humans of being able to collect and process full information about each and everything. Instead of the postulate of rational agents, the importance of bounded rationality was emphasized in cases when the mentioned prerequisites of fully rational agents cannot be met (Lorenz, 2009). It is assumed that the optimal rationality itself is constrained by a number of factors. As mentioned above, there are important limitations, such as the factual or principled limitation of knowledge of the constraints and boundary conditions and the predictability of each decision (Simon, 1955). Further limitations are (Simon, 1955), the “endowment effect”, the “fear of risk or the inertia”, “myopia” and a phenomenon called “satisficing”.

Table 1: Boundaries in Decision-making Process

Endowment effect	People tend to estimate higher the value of what they have, than that what they could achieve by changing their actions, even if the economic value of both goods is objectively equal.
The fear of risk or the inertia	People tend to continue their previous behavior even at considerable cost, if alternative behavior is associated with incalculable risks.
Myopia	Temporally close events subjectively have a higher weight than more distant events in time, and obvious targets are prosecuted rather than more distant goals – no matter what abstract rationality.
"Satisficing"	People usually consider only a few alternatives, usually only two, and not all which would be considered reasonable. They stop weighing, when they came across a reasonably satisfactory solution, even if there is a real chance that there are still much cheaper solutions.

Source: Own illustration, content adapted from Braun (2010)

According to Esser (2002), this catalog is supplemented by what he called the "Elias-effect", namely that, the more confusing and expensive the consequences of an action, the more people will be cautious and calculating. Are there clear fronts and is not much to gain with caution, reflection and rational calculation, following ones passions is easy. More than that, it is literally obviously vital not to wait too long what one does. Bounded rationality means, therefore, that human action is based on a cost-benefit analysis, including weighing the benefits of rationality and effectiveness (Braun, 2010). The use of reason and understanding is bound to have adequate access to information that can be limited, and requires time and effort. The cost of the use of reason and understanding must, thus, also be taken into account. Sometimes it is better to react spontaneously or on a basis of a rule of thumb (Lorenz, 2009) instead of analyzing too long.

Becker (1999) emanates from the economic point of view that all human behavior can be treated as if there were actors who maximize their utility, based on a stable system of preferences in different markets and gain optimum configuration for information and other factors. Becker (1999) goes on to say that then in this case the economic approach provides a unified framework for the analysis of human action. Becker (1999) emphasized, however, that core of this approach is not rationality, based on a consciously thinking, but a deeper rationality of action. Here there are parallels with the rationality of procedures, according to Luhmann (2008).

Further and following Selten (2001) bounded rationality is not simply a weak version, but structurally different, because people are not able to perform all their actions on the basis of a utility maximization calculus. Procedures may help them, but definition-makers often do not know exactly what they want. The cognitive abilities are also far from enough to asses risks precisely or to determine probabilities exactly. Rather, in making decisions they are guided by collective quality criteria and seek solutions as simple as possible ("rule of thumb"). Emotions can play a major role in the decision-making behavior, for example, by restricting, or at least preventing the attention strongly against potential risks (Selten 2001). The search goes also in the socio-emotional direction with the goal of a socially acceptable and balanced solution or cooperation, even if optimal solutions would be achieved without cooperation. Based on previous decisions, people gather certain experiences through which they develop a certain "level" for future decisions and actions that they adapt to each of success or failure. A typical sentence, for example, reads as: "We have always done it that way, so it cannot be wrong." In a real decision situation a solution is not usually found strictly rational, but on the basis of experience in similar situations, and one decides intuitively. Finally, it cannot be decided rationally between competing goals because these goals cannot be compared quantitatively. Again, the decision maker can proceed only emotionally, checking for instance, with which solution he can live better. This means, in contrast

to the economic theory of decision, that people do not act rationally and choose the best alternative. Normally, they do not learn from their mistakes, remain in a given course, cannot draw from their expectations and are only forced to give up habits. At the end there is again predictable, but irrational human behavior (Ariely, 2008). In reverse and in between, it can be concluded from this irrational behavior on the defectiveness of actions in the implementation of privatization decisions, if they become manifest. These consequences can be estimated by considering the legal consequences, leading to more transparency in the privatization phenomenon.

3.3. The Privatization "Scene" as a Complex System

Since economics aim at describing the behavior of actual, living human beings, feedback processes have to be seen in a different light as the law, ideally. Although it is trivial to stress that individuals react to changes in their economic environment in their own particular manner, it is a useful exercise to emphasize a few essential difference between *homo economicus* and human agents living in an interdependent economic world. Dörner (2002) was able to prove, that, in complex situations people know very well that their actions could have fatal consequences. Because people avoid correcting their errors for reasons of self-protection or a lack of alternative courses of action, they unconsciously describe their perceptions and decisions to be correct. They construct a "psychic" reality in order to protect the feeling of competence from injuries and losses. In the present context of privatization projects due to, for example, savings measures, one can with Dörner (2002) see that the inadequacy of human information processing, which tempts as shown in the following table to favor rash behavior instead of a useful and purposeful behavior.

Table 2: Behavior due to deficiency of human information processing

Rashly behavior	Useful and purposeful behavior
Getting started and act quickly	Analyzing the initial conditions and plan further action
Ignoring the relationship between various problem elements	Work out the interaction between problems and determine their influence
Focus on the nearest event	Investigating the side-effects of long-distance effects of actions
If the chosen path turns out to be less successful, taking increasingly radical measures	Changing the approach and seeking new paths

Source: Own illustration, content adapted from Dörner (2002)

People perceive preference for what they expect or know well or secretly desire. They react under pressure with narrowing of perspectives and seek safety in simplicity and familiarity. Objectivity, rationality and reason are thus not to be expected when making decisions. The logic of failure (Dörner, 2002) or the logic of unreason (Mérö, 2007) is that people follow seldom rational and objective considerations, because they are always influenced by motives, attitudes and feelings, which depend in turn in experience and learning processes. Consequently, people do not decide based on an absolute scale, but relative to their individual experiences, interests, social contexts, and standards (and relative to their emotional state). This may be reflected on the respective EU Member state and its people and the perceived importance of general interest.

But decisions are influenced not only by the personality of the decision maker they can also have an impact on the long term situation of the decision-maker himself. He is held responsible for bad decisions and faces new unfamiliar situations. Outsiders make him responsible for their exclusion. The governing dynamical system in health care strives in the hospital area as well as in the funding sphere for certainty, stability and sustainability. Economic, as shown above, is different. Economic

environments are permanently due to innovations, changing demand etc. Political ideologies may find their routes to academic convictions (and vice versa).

4. Political framework conditions

The European social model is strongly influenced by the ideas of the welfare state. It is its fundamental and distinguishing feature; nevertheless, the voices accumulate, demanding to withdraw from spending on the welfare state (Pestieau, 2006). According to Pestieau (2006) it is up to two main charges: that the welfare state fails to achieve some of its main objectives, and that it is responsible for a decline in economic performance. Especially, health care in Europe is public and faces huge financial problems, so it becomes problematic to maintain its financial soundness and its universal accessibility (Pestieau, 2006; Kersting, 2008).

4.1. The Health Policy Viewed as an Economic Policy

The traditional instruments of economic policy can be tested for suitability for control of the health system, if the health care system is seen as a market that is generally accessible to the competition (Lauterbach et al., 2010). This combination is not far-fetched, even for Europeans who are accustomed to a caring health care. Regularly, less regulation means more market forces. Hence, the transferability of general economic policies in the health care needs closer examination. Thus, health policy would initially be based on models of economic policy, especially on the assumptions on the behavior of actors. These are especially the self-interest of actors, the rationality of acting with utility maximization under limited information, the opportunity cost principle and the adoption of risk-averse behavior, as mentioned above. An orientation of economic policy, consequently, allows the application of competition theory, the theory of decisions under uncertainty, the economic theory of policy, management theory, institutional economics and transaction cost theory (Graf von der Schulenburg, 2008). Key objective of health policy limiting the market power and the possible establishment of a functioning market or competition would be about efficiency. Efficiency is understood as the best allocation of available resources on the field of use (see above).

On an abstract level, therefore, structural similarities between economics, law and management can be found. Questions about interactions and contexts in European law, on constitutional principles, simple legal rules, legal and social norms can be analyzed at all in the health sector with the economic analysis of law. For that, the economic analysis of law relies on the rational principle ("rational choice theory"), the principle of efficiency ("efficiency") and on the analysis of legal consequences to measure the effectiveness of health policy. Simultaneously, the recourse to economic policy means that an intervention of the health policy can only be derived if a market failure occurs.

4.2. The Pursuit of Efficiency

Health policy as an economic policy offers the tantalizing prospect that is created with a unique set of conditions an ideal health care in terms of welfare economists, and then this system is competitive, acting under the actors for a balance and maximizes the benefits to society (Lauterbach et al., 2010). In theory, there are the appropriate models, such as health care should look like. These models of market foresee that health care is limited to the allocation of resources according to the willingness and ability to pay. Unless a patient does not have sufficient financial resources, the necessary redistribution takes place within the tax system or the social security system (Eidenmüller, 2005). To what extent the tax system (or fiscal policy) is able to provide funds, actually, is ruled out of the models as an external frame.

Essential for the understanding of health policy as economic policy would be to eliminate or at least alleviate the market failures. Market failure is manifested in particular by external effects, lack of consumer sovereignty or the lack of market transparency. The occurrence of all these problem areas can be assumed in the healthcare industry. Market failure in health care means, that there are several areas where the market forces are not able to achieve efficiency. As the crisis in the banking sector (Stiglitz, 2011), especially the lack of market transparency seems to be a decisive criterion for the failure of the functioning of markets in health care (Lauterbach et al., 2010).

Supporters of market-based models argue that the elimination of market imperfections must be at the forefront of health policy efforts. This would still be more efficient than to execute the turnaround in the market place and return to state control. True is that market failure does not always imply a government intervention. Rather, the loss of benefits to the population due to market failure must be compared with the possible loss of value due to the alternative possible state failure. State failure expresses itself in very different ways and it can range from over-regulation to the delayed introduction of long overdue innovations (Eidenmüller, 2005).

Proposed solutions for markets are almost always based on the creation of transparency. Such solutions, however, ignore the monitoring of induction of transparency, therefore, for the production of functioning markets. Here, the EU can play a significant role, which can therefore be designed as a mandate in health care. The derivation of possible points of departure for health policy action remains within the economic model of welfare maximizing the benefits for society as a whole.

Both positions seem to be inappropriate according to the current state of research. Empirically, no health care system has so far shown that a market-based control may have advantages compared to regulation; in particular, rapid growing financial needs while growing inequalities cause problems in market-based systems (Lauterbach et al., 2010). In other words, in understanding the limitations of resources, one has to ask the question whether the resources one has are being rationally allocated, and what percentage of them are being squandered on problems that should be dealt with in other ways. Having entire populations dependent on healthcare for treating even the slightest ailment or injury does not seem ethically, financially or practically attractive or viable. These issues need to be the subject of long-term, expertly managed social debate on health care as a service area of general interest (Kersting, 2008). The issue of empowering populations to take responsibility for their own health is beyond the scope of this contribution, but it relates to practical issues and to communications on the EU level. Lack of retention decisions can affect the democratic formation of opinion and therefore on electoral success. These relationships are often analyzed with sociological approaches. Here, the economic theory of politics is essential.

4.3. The Normative Foundation of the Privatization Phenomenon

Private contributions have always been essential for the performance of public tasks. Not only because many private activities have a reflexive relation to the public sector, but also because significant parts of the society act altruistically.[3] The health care system is no exception. After all, many individuals give free results of their work force to the public.

[3] Since this paper is about the development of statehood in relation to the development of capitalism, the (eminent) position of non-profit organizations remains free. One can describe the relationship between hospital operators in Germany shortly: The private institutions will usually generate long-term return on invested capital. For the non-profit, mostly church institution the charitable order is in the foreground, however, losses may not be approved. Economically, the result is the temptation to seek only so much efficiency, as it is currently required

These private activities show that the (state or municipal) administration cannot ensure a balanced performance of all public functions alone and in itself, but only together with the forces of society (Orstrom, 2011). Yet, after its image as a modern welfare state, Germany was continually increasing the provision of essential services acquired through its own administrative activities since the 1960s (Burgi, 2008). The provision sought by the guarantee of a reliable and socially equitable supply of the entire population was associated with significant costs for the responsible administrative units. Especially in times of weak economic activity, this led to a significant burden on public budgets, and, consequently, to a continually rising public debt, which may be able to be classified as critical in the wake of the financial crisis and the current development of the Member States' national debts.

The strengthening of public finances by increasing the tax burden is difficult to convey to the people and meets on economic concerns about side effects. Given these obstacles to increasing the public revenues, the reduction in expenditure has been the goal of many reform ideas. A crucial starting point is the concentration of state activity on so-called core tasks, while the remaining areas should be covered again by the independent civil society (cf. Orstrom, 2011). Since the 1980s the slogan "Lean State" refers to an increased extent of privatization (Janoska and Thöni, 2009). It is not expected that this effort could be hampered by the current aversion under the heading of "market fundamentalism", i.e. the belief that free markets produce economic prosperity and economic growth on their own (Stiglitz, 2011). As far as the involvement of private actors is conceived as an opportunity for saving costs and the transformation of the administration into efficient and service-oriented authorities, the same expectations lead to the idea of increasing efficiency in the health sector. Especially from the purifying effect of competitive pressure in a free market, positive impulses are expected for what is perceived as cumbersome government service delivery.

5. Shaping public policy alternatives in the hospital care

The aim of the economic analysis of institutions in public law is to assist the legislature in the design of regulatory systems (Bizer, 2002). Whether privatizations are advisable can be detected by an integration of the German welfare state principle into the economic analysis of (constitutional) law (Janoska and Thöni, 2009). The privatization process in the hospital sector in Germany stands for a rollback of the state from a range of important public interest. This means not only a change of the reference object but also a change of institutions of public law. Even if it seems as if the state loses his influence in the hospital care through the privatization process, the public mandate remains as an expression of the social state principle. In other words, regardless of the public or private nature of the "dosage form", the existence and access to sufficient quantity and quality of medical care facilities must be ensured. The social state principle, thus, only legitimizes the role of public hospitals in society (Kies, 1998). The public mandate in hospital care can be understood as a call to action, to safeguard the hospital care through administrative action if no adequate private provider is available (Janoska and Thöni, 2009). A priority can be made for the private provision of hospital services, if later on the allocation in the healthcare market is more efficient. From the social state principle is then given a design order for the legislative with the right and the duty due to the creation of social justice (Federal Constitution Court, 1996). In turn, the government must commit itself to improving health care. The German Basic Law does not specify what is meant by social justice. Even so, the order to design health care is equipped with a double reservation: the reservation of the feasible (henceforth: "feasibility"), in particular the financing (Federal Constitution Court, 1972) and the reservation of the

for balanced results. For the public, mostly lokal actors, the political significance of the facility is in the foreground.

desired (henceforth: “desirability”, in the meaning of desired condition, target status), i.e., the freedom of the state in implementing the mandate to provide, for example, public utilities (Federal Constitution Court, 1982).

From the perspective of economic theory of law the desired can be used toward implementing state goals and public responsibilities under rationality considerations. The legitimacy of the welfare state principle unfolds through the recourse to the goals and preferences of members of society. Normative decisions can be traced back to the choices of individual actors in order to define the social objectives more precisely (normative individualism, legitimization approach).

From a legal perspective, the analysis of preferences is addressed to the efficiency target as a competitive goal besides the goal of distributive justice. Considering the privatization phenomenon as efficiency-oriented, it realizes the “desirability” when the advantages outweigh the disadvantages and therefore maximize the benefits without causing any deterioration. If the preferences of society include accomplishing the aim of distributive justice it must be asked where and with whom advantages and disadvantages occur. One of the most important tasks in any market economy is, therefore, that the tension between efficiency and equity is moderated and is on the understanding that social stability can be achieved only if the national product (wealth) is generated and distributed relatively equitable (Eidenmüller, 2005). For the problem of distributive justice in the hospital care it is about the affordability of access be redistribution in the tax and social security sector. With the principle of solidarity in the social security is targeted another area of the social state principle, namely the financing (Kingreen, 2003). From the perspective of efficiency, the Pareto criterion is sufficient as a normative measure for determining the economist role of the state and its effectiveness in the hospital care. The Pareto criterion is a decision criterion for the evaluation of different social statuses. It is used to describe the preference for a condition A (e.g. hospital care in the regulatory state) form a different condition B (e.g. hospital care by means of a state production). The condition A can be described as Pareto-superior if at least one individual prefers it and everyone else either will do or is indifferent between A and B. A is Pareto-optimal if there is no other social condition, which at least one individual prefers and no one else rejects. Main case of application is the market mechanism. The market mechanism works “ideal” if it leads to equilibrium in which the conditions of any market participant can be improved only if simultaneously worsens the position of another. In that regard, on the initial equipment with economic resources of the participants depend what specific equilibrium can be reached. If the initial situation is changing, a different equilibrium is reached. Any equilibrium can be achieved, depending on how the initial endowment is modified (Eidenmüller, 2005; Posner, 2007; Cooter and Ulen, 2008). In the German hospital care the state behaves regardless of the chosen form of hospitals always as a market participant, as long as other providers are present in the market. Based on the close interdependence with the market mechanism, the Pareto criterion is recommended almost to make assessments of alternative models for service provision in hospital care and changes due to the privatization process (Janoska and Thöni, 2009).

5.1. Privatization and Feasibility

If it is assumed for the analysis of the welfare state that the “desirability” may well correspond to the provision of care at the hospital market is exclusively influenced by private providers and redistribution through the tax and social legislation by the state to establish a fair distribution in the hospital care, so in the next step will be asked whether the privatization process can be measured on efficiency, namely as a state withdrawal from the hospital sector.

The subject of the "feasibility" plays a dual role, as it produces its effects on different allocation levels. On the one hand, it is an absolute limit to the overall framework of public revenue and expenditure, because it can only be distributed, because what is available can only be distributed. On the other hand, performance rights are subject to it in the sense of what the individual can reasonably claim from society (Federal Constitution Court, 1972). This varies with the conditions of a society. The reservation is not an absolute limit of "feasibility", but appeals to the allocation and weighing of opposing legitimate interests in the use of existing resources. The consequent balancing of interests can be understood in three different allocation levels: First, it is significant as the distribution of existing on the individual tasks carried out in the state (macro allocation); second, a set volume of funding can be offered, which is available for matters within a certain area (allocation on a meso-level); at the third level, when scarcity is changing the entitlement of individuals to an equal participation in each of the specific total allocation by the other stages (micro allocation) (Heinig, 2008). It differs from mere participation by the constitutional claims, however, binding effects, which are deployed at the level of meso-allocation. In that regard, the "feasibility" is just not about a right to equal participation in the status quo of public services, but also to the moderate control of health assets. The public sector is bound by it at the level of meso allocation a greater extent than at the macro level of total funding. Thus, "feasibility" is fitted into an instrument with which the freedom-functional concerns of the welfare state in the whole range of state involvement are under conditions of scarcity of state resources (Heinig, 2008). Looking not only at the limiting function also has the "feasibility" a balancing function. If at the end of the assessment process, it is clear that a quantitative and qualitative supply of hospital care through private is possible in a more efficient manner, it may therefore result from the social state principle a dictate of reason for privatization.

5.2. Alignment of the Privatization Process on Efficiency

If the focus is on expenditure of resources, the privatization process must be aligned, so the allocation of resources will be directed optimally to the different uses and that a level of care is achieved for all users in the hospital system, which cannot be further increased. As the ongoing privatization trend in Germany (Federal Office of Statistics, 2011) shows, there are no such condition in the public hospital care. Under the aspect of procedural rationality (Luhmann, 2008) the privatization process leads in itself to a relief of public budgets, if the public task will be fulfilled reliably by private providers so that there would be a need only to regulate the process of transmission. This only happens if the task of hospital care can definitely be transferred with the care facility to a reliable private provider. This allows the release of long-term funds in public budgets. With the concrete actions of representatives of public hospitals in the privatization process and the occurring problems and opportunities in terms of that goal attainment an effective and efficient policy of privatization can be implemented as a measure of economic policy (Janoska and Thöni, 2009).

Released funds can be used to tackle other tasks. Afterwards, the actors involved in health care have to make cost considerations, which may be made in cost-benefit analysis of current and future conditions of hospital care. The cost-benefit analysis is about the ex-ante evaluation of state projects where costs and benefits are compared which do not occur only today but also in the future and, accordingly, affect society as a whole. The rule of positive net benefits (Pareto improvement) as a decision criterion is applied her, with the aim of creating a socially decision (Pareto optimum).

With the application of the principle of efficiency in the privatization process, moreover, a description of the current state of health care in the hospital sector is possible, when the privatization trend must be stopped, because an increase in efficiency is no longer possible. The (political and bureaucratic) procedural justification for the privatization process itself is limited by the latest entry privatization as

a result of inefficiencies. The economic theory of law therefore can give recommendations for the control of government failure (or market failure) (Engel, 1998; Kerber, 1998). It also serves on the analysis of legal and real consequences as an indicator to identity, early privatization negative consequences, such as the formation of monopoles. Then there is also a tool at hand to decide about a reversion or other state inventions to prevent negative consequences for health care and to escape from misallocation.

6. Conclusion and outlook: The substrate of the care order of the state

Many politicians tend to recommend the market order of Adam Smith for all private property and the Leviathan of Thomas Hobbes for all communal goods. Furthermore economic theories see the welfare state as replacing insurance markets to compensate for market and information failure. But to choose an institutional framework, the core of rational decision is to compare the advantages and disadvantages of alternatives objectively, to evaluate the benefits on the basis of a calculation and to select the alternative with the greatest benefit. The financial crisis of 2008 and its aftermath demonstrate errors, rather a failure, from which one can for the sectors of the real economy derive models of functioning systems under either public or private auspices. The lack of transparency and the lack of overview of consequences, even if they can be anticipated, can make sense of an overarching coordinating body, how the EU is already occupied in competition law. It is not about replacing the powers of the Member States, but about harmonization of living standards in the EU. Anyway, for the health systems and the challenges to overcome, it appears very rational to align and to promote transnational cooperation between the Member States. It may follow two positive effects, in the short term the market opening to entrepreneurs and in the long run opening up opportunities for resolving crisis situations.

In order to establish in the health care market more open market economy and to give entrepreneurs an economic perspective, it is necessary to create reliable conditions. This includes not only reliability in the region that already belongs to the private market. But also in the area that would benefit from acquisitions. The hospital market is an area of mixed economy. This mixed economy has also to suffer from the turmoil in international financial markets. The consequences are not yet visible for patients. It is even questionable whether these problems even become visible to patients, since the view of the patient will already be restricted by the disease. The consequences of the financial crisis depend in public budgets and are partly, in the health care sector, covered by the obvious problems in the healthcare market. Increasingly, it seems questionable whether the public sector can fulfill the service obligation, the policy has prescribed it. In this context it is natural to question the extent to which individual market participants may perceive their service obligations. In the privatization process the public sector should act rationally and transparently. Actors should not only react on repercussions of a measure but on the consequences. The economic analysis of law provides the tools.

As soon as the healthcare environment changes, because of privatization, the former conception can change as well (changes such as environmental catastrophes will be ignored, but as a cause for the arising of the hospital sector to be kept in mind, e.g. due to pandemics, war, poverty relief, etc.) and innovations in the form of changes in the institutional framework in which activities take place “might require that economic actors adapt their individual behavior to these changes in order to perform optimally in this new environment” (Lorenz, 2009). When such innovation in an array of services is restricted to visible time spans during which daily experiences converged to a new scenario, the same qualitative description of the particular economy may be appropriate as before (cf. Lorenz, 2009). If

innovations represent a permanent disturbance in a succession of environments, the overall picture changes in time.

As the financial crisis in 2008 showed the classic crisis management is not enough for today's crises. This also applies to health care systems. The difference between crisis management and the leading of crises lies in the timing. Crisis management is applied after the crisis has occurred, so only reacts to the occurring difficulties. By contrast, in order to lead crises, proactive measures are operated before the crisis admission, are therefore preventive. Even if no crises are threatening, carefully worked out plans are ready to address them. As the financial crisis demonstrated since 2008, soon as possible one should provide an idea of what might occur as crises. Which body should be more appropriate for coordinating and conducting crises in a single health market, than the institutions of the EU? This requires creating a self-learning and self-correcting culture that may imply a balance between centralization and decentralization. It can be built on two elements - the structure and the systems. The structure, from a political perspective, is particularly the style of health care, e.g. embodied in public or private law, designed with state-owned or private companies. This includes the arrangement of component parts: the number of facilities, the size of companies, divided into regions and so on. From the viewpoint of a hospital it is the external environment comprises the whole range of economic, social, political, and technological factors. Thus, the structure is the sum of its parts. In addition, a health care consists of its systems. These include the employees, the supply of energy, sanitation, treatment facilities, financing system and so on. The systems create the space in which the task of health care can be fulfilled. Only when something breaks, we consider the systems. Privatization is concerned, if the financing of public tasks cannot be guaranteed. Without funding, there is a danger for the fulfillment of tasks by the systems. If the systems do not work, there are only a few parts that do not fulfill the desired function. The errors can be detected, when the structure and the systems are reviewed. This presupposes an idea of the errors in the systems. In turn, this implies the need to recognize that the initiation of cultural change in the systems is required. The process of cultural change has at least two sides. One side is the "bottom-up" effect that many changes can be effected by those people who do the practical work at the level of EU Member States. The other side is the "top-down" reality that changes are caused by the instructions from above. This reality is also to observe at the level of EU Member States. Finally, a change on organizational culture requires a commitment to the health systems at all allocation levels. The culture is so altered by a series of small steps that must be made at all allocation levels, Therefore, for a reasonable assessment of the different opinions about the design of a future common health market one looks best at the actual lines of development and the background of the privatization first. Thereafter a discussion with the normative and economic foundation of the privatization phenomenon and its consequences for an EU policy can take place.

In the aftermath of the crisis can be conclusively confirmed that the joy of a money economic national product is overshadowed by the fearful question: "Can we afford this?" And not just because of the illusion of a too-generous money-creation, but by an arduous multiplication and best arrangement of the elements of production: Human activity, natural gifts and productive capital. The economic costs of goods that are to be distinguished sharply from the monetary economic costs are critical to the long term behavior of the individual, especially entrepreneurs – not vice versa. Certainly, the strength of desire, the will and ability of individuals and entire groups is not without significance for the economic debits and credits. But the key is still the willingness and ability of someone who desires to make sacrifices.

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A question of causality between political corruption, economic freedom and economic growth in Europe

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Economic, cultural, social, psychological, political, administrative and religious effects of corruption are manifested by functional, political and moral degradation of local public authorities, which is a result of the expansion of political corruption, by reducing the transparent and accountable political power or by social tensions and increasing impoverishment of the population.

In the executive activity, corruption has an effect on the reduced quality of public administration, the existence of an informal decision-making system and close links between organized crime, corrupt officials and politicians. Thus, outwardly effects of corruption, even in international relations, is manifested by the conduct of incompetent, irresponsible, provocative and subjective – conventional behavior of persons in positions of responsibility which, in dealing with foreign partners, primarily promotes personal and corporate interests against national interests, which, inevitably undermines the country's image and credibility as a partner in international relations.

This paper tries to showa more accurate picture of the extent of corruption in Europe, through individual analysis of indicators measuring corruption and by quantifying the relation between corruption and political, administrative and economic determinants factors, through a regressive "pool data" model. For a fine approximation of the decision-making mechanism, in accordance with the policies they generate, there is a necessity the knowledge and understanding of how the political elements are transformed into real elements to measure their incidence. This paper adds to the empirical literature on the relationship between corruption and economic growth by incorporating the impact of economic freedom.

Keywords: Political corruption, economic freedom, economic growth

1. Introduction

It is not necessary to be adept of alarmist or panicard ideas to see that a threat, under various forms of manifestation, over the time, was always present in developing relations between people, that has perfected the specific methods of action, standing the myriad causes of conflict situations that have shadowed the evolution of human society, both socially and economically.

The complex and difficult process, sometimes contradictory, of transformation and radical restructuring that involves the transition from one political system to another, from a hypercentralized economy to a market economy, has on its content, intense phenomena of inherent social disorganization in a new form of organization.

Therefore, the causes of individual and socialcorruption must be seen in close interdependence and reported with the profound change processes that characterize society as a whole.

Socio-political effects of corruption is manifested by functional, political and moral degradation of local public authorities, which is a result of the expansion of political corruption, by reducing the

transparent and accountable political power or by social tensions and increasing impoverishment of the population.

The debate on the impact of corruption on economic performance goes beyond a "moralistic view" that unequivocally condemns corruption, that is way this research tries to link the corruption, economic freedom and economic growth and investigate whether they exists any causal relations.

In this paper, *the linkage between political corruption, economic freedom and economic growth* were examined in empirical context for European Union, over 1995-2010, in both directions: corruption causes economic growth or economic freedom or vice-versa, economic freedom or political freedom serves as a deterrent to corrupt activity. In particular, does greater economic freedom or greater political freedom yield a lower "corrupt" society?

This paper adds to the empirical literature on the relationship between corruption and economic growth by incorporating the economic freedom and the extend approach of corruption in two theoretical points, in a more general political economy of public policy: 1) the proxy for political corruption and bureaucratic corruption and 2) a dimension of good governance.

Following the introductory part, related literature was overviewed in the second part and the methodology of the study and econometric model were put forth in the third part and finally the findings were interpreted and a general review was made.

2. Literature review

The determinants of corruption, in line with the multifaceted nature of the phenomenon, are diverse and heterogeneous and the relevant literature has addressed a large number of these determinants and come up with different results. That is way the aim of this paper is to review and extend the empirical evidence on the relationship between corruption, economic freedom and economic growth, by responding to these questions: 1) corruption causes economic growth or vice-versa; 2) economic growth causes economic freedom or vice-versa; 3) economic freedom causes corruption or vice-versa?

Under forms, effects and the controversial issues arising from corruption phenomena, we consider necessary to clarify the conditions that allow its expression. Thus, we can better understand the meanings and implications of corruption on socio-economic performance.

2.1. Review from definition to methods of measurement

In an attempt to identify the degree to which corruption and economic freedom correlates with the development indicators, as these are reflected in statistics and reports prepared by various organizations, we consider useful the description of how the indicators are designed.

Also, such an approach is necessary, in order to understand which indicators are a prerequisite for development and which indicators reflect the state of development, in terms of items that can appear as contradictory.

In this respect, considering the controversies in the field, with their openings and their limits, we can identify a number of definitions and of indicators that shape the notions of corruption, economic freedom and growth.

Corruption is a problem that mainly arises in the interaction between government and the market economy where the government itself must be considered endogenous (Andvig et al., 2000). The approach of corruption occurs basically in this main forms: bribery, embezzlement, fraud, extortion, cronyism, nepotism, patronage and graft, but there is no international consensus on the meaning of corruption (Rohwer, 2009):

- Bribery is understood as the payment (in money or kind) that is given or taken in a corrupt relationship. Equivalent terms to bribery include, for example, kickbacks, commercial arrangements or pay-offs. These are all notions of corruption in terms of the money or favours paid to employees in private enterprises, public officials and politicians. They are payments or returns needed or demanded to make things pass more swiftly, smoothly or more favourably through state or government bureaucracies.
- Embezzlement is theft of resources by people who are responsible for administering them, e.g., when disloyal employees steal from their employers. It is not considered corruption from a strictly legal point of view, but is included in a broader definition.
- Fraud is an economic crime that involves some kind of trickery, swindle or deceit. It in-volves manipulation or distortion of information, facts and expertise by public officials for their own profit.
- Extortion is money and other resources extracted by the use of coercion, violence or threats to use force.
- Cronyism is a form of corruption in which political officials and businessmen show preference to friends when appointing people to positions of power, awarding contacts, and delegating tasks related to their office.
- Nepotism or favouritism is the natural human proclivity to favour friends, family (wife, brothers and sisters, children, nephews, cousins, in-laws etc.) and anybody close and trusted. Favouritism is closely related to corruption insofar as it implies a corrupted (undemocratic, “privatised”) distribution of resources.
- Patronage as corruption phenomenon is the illegal conduct which gives an individual or group some private advantage which is contrary to the public interest. Corruption may become part of patronage, for example, if it is legally required that government contracts go to the lowest bidder, yet a client uses influence to win a contract even though his or her bid is higher than others.
- Graft is defined as a use of public stature to gain illegal benefit. Technically, corruption covers an entire host of abuses, of which graft is one. Graft and corruption are charges that are typically leveled at highly-placed government officials, who are able to use public funds to improve their own fortunes due to increased access, influence, knowledge or power that comes with an elevated position.

This approach explains the evolution of corruption in terms of society evolution and in terms of values that characterize different stages of its development, from traditional to modern society and postmodern. The causes and reasons for corrupt behavior are considered, therefore, rooted mainly in socio-cultural contexts persistent over time. These seven categories capture most of the types of corruption described in the literature. There may, however, be certain acts that correspond to people’s intuitions of corruption and do not fit neatly into one of these categories.

Systemic corruption has important implications in terms of assessment and program design. It encompasses the notions of both *grand corruption* (involving members of the political and economic elite) and *administrative corruption* (which involves the interactions of mid- and lower-level officials with small and medium-size businesses and ordinary citizens) (Lanyi and Azfar, 2005).

These different approaches to corruption, as social, political and economic phenomenon, cause a number of difficulties in transposition in the indicators for measuring. Corruption indicators differ in conceptual breadth, some have more dimensions than others, so, most of them provide a single measure of corruption intended to reflect a mix of various aspects of corruption.

Regardless of one's preferred conceptual definition, the choice of measurement techniques from a limited set of feasible alternatives inevitably produces an implicit definition that can differ substantially from one's ideal. Any pair of assessment methodologies will measure a different (if unknown) mix of these various dimensions of corruption.

In recent years, corruption measures, at the regional, national and global level, mostly using perception surveys as the leading method to collect data, trend to group around two types:

- measures of the existence and quality of institutions, rules and procedures as governance and anticorruption inputs;
- measures of what those mechanisms lead to in practice as governance and anticorruption outputs.

Indicators have proved very useful in raising awareness, making cross-country comparisons and conducting statistical analysis, helping establish correlations between corruption and a wide range of variables (U4 – Anti-Corruption Resource Center, 2009).

We can distinguish between the following types of corruption indicators (UNDP, 2008):

- Perception-based indicators and experience-based indicators - are based on the opinions and perceptions of corruption in a given country among citizens and experts;
- Indicators based on a single data source and composite indicators - are produced by the publishing organisation without recourse to third-party data whereas composite indicators aggragate and synthesize different measures generated by various third-party data sources
- Proxy indicators - measure corruption indirect, by aggregating as many opinions (or voices) and signals of corruption, or by measuring the opposite: anti-corruption, good governance and public a countability mechanisms

Table 1: provides an overview of posible international corruption indices

Source	Indicator name	Website link	Conceptual dimension
Transparency International	Corruption Perception Index	http://www.transparency.org/policy_research/surveys_indices/cpi	Perceptions of extent of petty corruption. Bribery
	Global Corruption Barometer	http://www.transparency.org/policy_research/surveys_indices/gcb	Perceptions; Experience with corruption; Bribery
	Bribe Payers Index	http://www.transparency.org/policy_research/surveys_indices/bpi	Original, Bribery
Bertelsman Transformation Index	Bertelsman Transformation Index	http://www.bertelsmann-transformation-index.de/bti/	Proxy
European Bank and World Bank	Business environment and enterprise performance survey	http://data.worldbank.org/data-catalog/BEEPS	Original proxy, corruption in the business sector, pettty corruption, business regulations

Source	Indicator name	Website link	Conceptual dimension
World Bank, European Commission, DFID	Public Expenditures and Financial Accountability	http://web.worldbank.org/WBSITE/EXTERNAL/PEFA/0,,menuPK:7313471~pagePK:7313134~piPK:7313172~theSitePK:7327438,00.html	Assesses budget performance, trasparency of budget formation process, audit reports and other budget related practices
World Bank	Country policy and institutional assesment	http://go.worldbank.org/7NMQ1P0W10	Proxy. Corruption in financial, trade and public sectors. degree of regulations. Quality of fiscal management
	Worldwide Governance Indicators	http://info.worldbank.org/governance/wgi/index.asp	Hybrid
World Economic Forum	Global Competitiveness Index	http://gcr.weforum.org/gcr2011/	Proxy
Global Barometer Consortium	Regional Barometers in Africa, Asia, Latin America and Europe	www.afrobarometer.org www.asianbarometer.org www.latinobarometro.org ec.europa.eu/public_opinion/index_en.htm	Proxy; Democracy; Political Participation
Global Interity	Global Interity Index	http://www.globalintegrity.org/report	Proxy
Freedom House	Freedom house corruption index	http://www.freedomhouse.org/	Perceptions of extent of petty corruption.
Heritage Foundation and Wall Street Journal	Index of economic freedom	http://www.heritage.org/Index/	Perceptions
Political Risk Services Group	International Country Risk Guide	http://www.prsgroup.com/ICRG.aspx	Original. Corruption within public sector and private sector. Includes bribes, patronage, nepotism, secret party funding and conflict of interest
Mo Ibrahim Foundation	Ibrahim Index of African Governance	http://www.moibrahimfoundation.org/en/section/the-ibrahim-index	Perceptions, proxy, public sector corruption
Center on budget and policy prioritirs	Open budget Index	http://internationalbudget.org/what-we-do/open-budget-survey/	Proxy – Availability of budget documents lead to greater oversight, transparency and accountability

Source: modified and adapted from UNDP (2008), A Users' Guide to Measuring Corruption

Conceptual, methodological and empirical materials strongly support the message that no single corruption measure, nor single data source on corruption, is most appropriate for all purposes.

In this paper our attention is on aggregate indicators which combine information from multiple sources, as is Transparency International's annual Corruption Perceptions Index and the World Bank's Worldwide Governance Indicators who capture six key dimensions of governance (Voice & Accountability, Political Stability and Lack of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and especially Control of Corruption) between 1996 and present. The two data sets are regarded as the most reliable for cross-national comparisons and cover a large number of countries.

Corruption Perceptions Index ranks countries/territories based on how corrupt their public sector is perceived to be. A country/territory's score indicates the perceived level of public sector corruption on a scale of 0 - 10, where 0 means that a country is perceived as highly corrupt and 10 means that a

country is perceived as very clean. A country's rank indicates its position relative to the other countries/territories included in the index.

The Control of Corruption index is an aggregation of various indicators that measure the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Measurement tools that aggregate a number of existing data sources, like the CPI or WGI, have their strengths and weaknesses. On the one hand, composite indicators can be useful in summarizing a lot of information from several sources, and in so doing they can limit the influence of measurement error in individual indicators and potentially increase the accuracy of measuring a concept as broad as corruption. On the other hand, one can run the risk of losing conceptual clarity (Rohwer, 2009).

Believing that corruption erodes economic freedom by introducing insecurity and uncertainty into economic relationships, the approach that we propose expresses the elementary truth that the economic policies oriented towards interventionism and redistribution will fail to ensure prosperity. Therefore, the only sustainable way to reaching this goal is to promote systematic economic freedom.

To highlight Economic Freedom, in this paper, we will use The Index of Economic Freedom is a series of 10 economic measurements created by The Heritage Foundation and The Wall Street Journal. Its stated objective is to measure the degree of economic freedom in the world's nations. The main assumption in the index is that economic freedom is a positive cultural and societal influence.

The Index measures the level of economic freedom in 161 countries around the world. To measure economic freedom, it focuses the study on 10 different factors:

1. Business Freedom - is a quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process;
2. Trade Freedom - is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services;
3. Fiscal Freedom - is a measure of the tax burden imposed by government. It includes both the direct tax burden in terms of the top tax rates on individual and corporate incomes and the overall amount of tax revenue as a percentage of GDP;
4. Government Spending - considers the level of government expenditures as a percentage of GDP. Government expenditures, including consumption and transfers, account for the entire score;
5. Monetary Freedom - combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity;
6. Investment Freedom - in an economically free country, there would be no constraints on the flow of investment capital. Individuals and firms would be allowed to move their resources into and out of specific activities both internally and across the country’s borders without restriction;
7. Financial Freedom - is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector;
8. Property Rights - is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state;
9. Freedom from Corruption - is derived primarily from Transparency International’s Corruption Perceptions Index (CPI);

10. Labor Freedom - is a quantitative measure that looks into various aspects of the legal and regulatory framework of a country's labor market.

The Index provides a framework for understanding how open countries are to competition, the channals of state intervention in the economy, whether through taxation, spending or overregulation and, also the strength and independence of a country's judiciary to enforce rules and protect private property. But it is important to notice that Economic freedom is distinct from political freedom (participation in the political process on equal conditions, actual competition for political power, and free and fair elections) and from civil freedom (protection against unreasonable visitations, access to fair trials, freedom of assembly, freedom of religion, and freedom of speech).

Knowing that Economic freedom is an important factor accounting for Economic growth is probable on purely theoretical grounds, and to measure economic performance we will use the level of GDP.

2.2. The linkage between corruption, economic freedom and economic growth

The linkage between corruption, economic freedom and economic growth brings to forefront the method of correlation, that opened new ways for quantitative social science. In our paper, the causality, as a simple explanatory principle, of events was broadened to include the notion of association between events, such:

- The linkage between corruption and economic growth;
- The linkage between economic growth and economic freedom;
- The linkage between corruption and economic freedom.

The vast body of literature considered highlights two serious problems in examining the relationship between corruption, economic freedom and economic growth (Swaleheen and Stansel, 2007):

- differences among countries, known as "time invariant heterogeneity" or "country fixed effects", in terms of religion or culture;
- institutions have an important role in explaining cross-country differences in corruption (Triesman, 2000) and the rate of growth (Islam, 1995).

2.2.1 The linkage between corruption and economic growth

Empirically, there is broad consensus that corruption is detrimental to the economic performance of countries on the long term, in contrast with the ideas that corruption is a standard distortion, because corruption exhibited its harmful effects on growth.

Ugur and Nandini (2011a, b) addressing the impact of corruption on economic growth theoretically and empirically, using a meta-synthesis of the empirical evidence on the direct and indirect effects of corruption on growth shows that the theoretical/analytical literature can be listed as follows:

- corruption has a negative impact on economic growth;
- the relationship between corruption and growth is not uniform between countries and over time;
- corruption's effects on growth are mediated through contextual factors such as the level of development, the degree of centralisation of corrupt activities and the quality of governance institutions;

- the indirect adverse effects of corruption on growth are higher than its direct effects, and the highest indirect effect percolates through the public finance/expenditure channel, followed by the human capital channel.

Mauro (1995) in the first econometric study about impact of corruption on economic growth and investment across countries finds that much of the effects of corruption on growth take place indirectly, through the effect on investment, and when investment is controlled for, the direct effect of corruption on growth is weak. Although he did not find a significant relationship between corruption and growth, he did find a significant relationship between bureaucratic efficiency and growth (Mauro's results were later confirmed by Aliyu and Elijah (2009), Méon and Sekkat (2005, 2007) and, Aidt et al. (2008), Haque and Kneller (2005), Blackburn and Forgues-Puccio (2007), who report consistently that corruption is detrimental to economic growth).

Rahman et al. (1999) examined the effects of corruption on economic growth and gross domestic investment for Bangladesh. This study extended the earlier studies by Baro (1991) and modifing Mauro's model by including two regional dummy variables, find that corruption is significantly and negatively associated with cross-country differences in economic growth and gross domestic investment. The authors suggest that corruption retards economic growth by reducing foreign direct investment, so, the caution is that endogeneity must be looked at more seriously in investing the relationship between corruption and economic growth.

Méndez and Sepúlveda (2006) argue that the relationship between corruption and growth is non-monotonic (quadratic) and that this relationship depends on the degree of political freedom, because corruption has a beneficial impact on long-run growth at low levels of incidence but is harmful at high levels and that there therefore may exist a growth maximizing level of corruption

2.2.2 The linkage between economic growth and economic freedom

The main conclusion of the studies was that more economic freedom fosters economic growth, so, there exists a positive impact of various measures of economic freedom on the rate of economic growth:

- Dawson (2003), De Haan and Sturm (2000, 2001), Adkins et al. (2002), Pitlik (2002), Weede and Kampf (2002), using as dependent variable the growth and as independent variable the change in economic freedom index obtained as result an effect significant positive;
- Ayal and Karras (1998), Goldsmith (1995), Dawson (2003), Hanson (2000), Ali and Crain (2002), Carlsson and Lundstrom (2001), Pitlik (2002), Weede and Kampf (2002), Mahmood et al. (2010) using as dependent variable the growth and as independent variable the level of economic freedom index obtained as result an effect significant positive;
- Hanke and Walters (1997), Leschke (2000), using as dependent variable the GDP per capita and as independent variable the level of economic freedom index obtained as result an effect significant positive;
- Gwartney et al. (2006, 2011), De Haan and Sturm (2000), Heckelman and Stroup (2002), Adkins et al. (2002), using as dependent variable the GDP per capita and as independent variable the level of economic freedom index obtained as result an effect not significant;
- Cebula (2011) investigates the impact of the ten forms of economic freedom on economic growth in OECD nations, using both, panel least squares estimations and panel two-stage least squares estimations find that the natural log of purchasing-power- parity adjusted per capita real GDP in OECD nations was positively impacted by monetary freedom, business freedom,

investment freedom, labor freedom, fiscal freedom, property rights freedom, and freedom from corruption.

A number of other studies attempting to clear the relationship between economic growth and economic freedom, answering the question whether freedom causes growth, growth causes freedom, or the two are jointly bilateral:

- The empirical result of Farr et al. (1998), in one of the earliest studies on causality between economic freedom and the level of GDP was the existence of feedback between economic freedom and the level of GDP;
- Then, Heckelman (2000) in an attempt to perform the causal relationship with economic growth, suggested the average level of economic freedom precedes economic growth.
- De Haan and Sturm (2000) also pointed out that economic freedom brought countries to their steady state level of economic growth more quickly, but did not increase the rate of steady state growth.
- Vega-Gordillo and Álvarez-Arce (2003) yielded interesting results that economic freedoms appeared to enhance economic growth.
- Dawson (2003) shows that economic freedom is the result of growth rather than a cause of growth.

2.2.3 The linkage between corruption and economic freedom

To better understand the link between corruption and economic freedom, most of the studies examine this relationship both in the form of informal economic activity and in the public-sector bureaucracy:

- Méndez and Sepúlveda (2006) find that in "free" countries, corruption and growth are inversely and nonlinearly related. In countries that are "not free," the relationship between corruption and economic growth is not statistically significant.
- Jong-Sung and Khagram (2005) argue that economic factors are often considered to be the prime causes of corruption. For instance, wealthy people have greater motivation and more opportunity to exhibit corrupt practices, whereas poor people are more vulnerable to being exploited and are less able to hold wealthy people accountable for their decisions and actions.
- Graeff and Mehlkop (2003) report that, depending on whether a country is rich or poor, different types of improvements in economic freedom have differential effects on corruption. They indicate that the legal structure affects corruption more in rich countries, whereas access to sound money is significant for poor countries.
- Billger and Goel (2009) show that, among the most corrupt nations, greater economic freedom does not appear to cut corruption

There is a relatively widespread literature which, by applying the econometric methods developed mainly in growth econometrics, examines the relationship between corruption, economic freedom and economic growth, but, in these empirical studies, many difficulties lies in obtaining proper measures of corruption, that identify and describe its linkage with the components of economic freedom and economic growth.

3. Methodology and Model

First, the empirical approach in this paper, in order to *highlight the linkage between corruption and economic growth* will monitor the "good governance" defined by the six dimensions, namely, Voice

and Responsibility, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption, and its incidence on the economic growth in the European Union.

The general econometric specification is formulized as follows:

$$gdp_{i,t} = \alpha_{i,t} + \beta voice_{i,t} + \delta pol_{i,t} + \theta gov_{i,t} + \varphi regu_{i,t} + \gamma law_{i,t} + \lambda cor_{i,t} + \psi dummy + \epsilon \quad (1)$$

In this linear model, left-hand-side variable is economic activity as represented by GDP growth and denoted by gdp. It is employed in order to measure the influence of governmental activities on economic growth and development. On the other hand, there exist six independent right-hand-side variables describing the dimensions of "good governance". Besides, model also includes a *constant* and a *dummy variable* which represents 2008 financial crisis. If the influence of crisis is progressing in questioned period for related country, it takes the value of 1; otherwise 0.

Data used in the paper, for EU 27, gathered from World Bank governance indicators called the KK Datasets, who is a set of world wide measures of six composite dimensions of governance perception indicators for 105 countries. These indicators are oriented so that higher value correspond to better outcomes, on a scale refers to the point estimates range from -2.5 to 2.5. These estimates are also rescaled and ranked in percentile (0-100). The lower percentile is ranked as worse off governance indicators whereas upper percentile is ranked as best governance for any given country. Thus, governance appears as a positive multidimensional concept concerning diverse essential aspects of institutional structures which, when associated, singularize every nation.

In the paper, linear panel data estimation methods were utilized in order to estimate the equation above. It is necessary to test the stability of series before the identification of the relationship between variables. Regression analysis would not be consistent and spurious regression problem would occur if unstationary data are used. In this regard, Levin, Lin Chu (LLC) (2002) and Im, Peseran and Shin (IPS) (2003) unit root tests were used for stationary investigation.

When empirical literature is reviewed, it is seen that the ordinary least squares (OLS), the fixed-effects model (FEM), or the random-effects model (REM) are employed for linear panel data estimations.

After being proved the stationariy of the variables, developed model i.e., (1) was estimated by linear panel data estimation method. Estimation results are reported in table 2. Hausman test confirms that there is no correlation between individual random effects and explanatory variables, indicating that the REM is consistent and efficient. LM test statistics also confirm our model selection and refer to the one-way REM that includes only individual effects. Diagnostic tests show that developed model contain both group and time effects and there exists no multicollinearity, no heteroscedasticity and autocorrelation.

Table 2: Panel Data Regression Results

			Dependent Variable: GDP
Independent variables	Coefficient	Std. Error	t-stat.
constant	4,777	2,069	2,39[0.01]**
voice	-5,881	2,421	-2,42[0.01] **
pol	-0,576	1,362	-0,42[0.67]
gov	5,965	1,283	4,64[0.00]***
regu	0,184	1,470	0,12[0.90]
law	-1,714	1,629	-1,05[0.29]
cor	-0,279	1,125	-0,24[0.80]
dummy	-8,306	1,016	-8,16[0.00]***
R^2=0,47	LM_{time}=0,39[0.71]	VIF=1,754[0.58]	
Adj. R^2=0,42	LM_{group}= 360,80[0.00]***	Wooldridge=0,285[0.23]	
F Stat.=9,98[0.00]***	Hausman=0,00[1.00]	LM_h=11,025[0.56]	

Source: authors' own construction

Note: Probability values of t-statistics are in brackets.

***, ** and denote significant at%1, %5 respectively.

According to table, government effectiveness and regularity quality effect GDP positively while voice & accountability, political stability & no violence/terrorism, rule of law and control of corruption negatively. Nonetheless, only voice & accountability and government effectiveness are statistically significant. That is, a rising score in voice & accountability decreases economic activity and a rising score of effectiveness of the EU governance increases economic activity raises in European Union. In addition, reported in table 2, dummy variable showing the effect of the 2008 crisis is highly significant and points out that financial crisis influences the growth rates of EU countries in a negative way.

4. Conclusions

In this paper, it is aimed to investigate the empirical *linkage between political corruption, economic freedom and economic growth*, but this proposed approach is highly applied due by the complexity of concepts addressed. We find ourselves in a position to analyzed and synthesized only a part of our initial approach, the linkage between corruption and economic growth, but hoping that our purpose will continue in a future paper.

The results recorded in this paper are closely correlated with the EU reality, and this negative impact of voice and accountability indicator on growth is worrying, because voice and accountability matter for development for two sets of reasons. First, powerlessness, voicelessness and a lack of accountability are constitutive of poverty, as such, enhancing voice and accountability leads in itself to a reduction in poverty. Second, voice and accountability can lead to other outcomes such as greater ownership and pro-poor policies which can lead to a reduction in poverty. It should expect a stronger correlation between these two variables if good governance is the result of a long historical accumulation of individuals with good morality (as argued by culturalists) or of feedback effects and increasing returns between social trust and good.

On the other hand, there is no significant relationship between the other four dimensions and Union's economic growth. There are two major factors behind this situation. First one is about sample period which covers 1996-2010. While EU had 15 members referring to EU15 in 1996, in 2004 it contained 25 and finally in 2007 the number reached 27. Hence, it is reasonable that evaluating EU's structure

which formed different time periods might lead a mistake. Second, member countries have heterogeneous political and economic structure which differs from each other. So that, it could be natural to find an insignificant relationship in questioned variables in this kind of structure. In addition, the latest financial crisis that is still effecting member economies has a strong adverse influence on the growth rates of the Union in an expected way.

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Crisis Management in the Baltic States

Júlia Mező Ágnes Bagi

The economic and financial recession started in 2008 brought serious difficulties for every European country, although not to the same extent. The previous situation of countries plays a major role in the course of the crisis and crisis management. The three Baltic countries showed a relatively prominent economic growth after their accession to the European Union in 2004. Their performance over these years often cited as Baltic Miracle.

But this growth went hand in hand with serious macroeconomic imbalances, since the main moving factor of growth was the foreign direct investment flowing into the tertiary sector and the boom of internal consumption. These factors led to unsustainable current account deficit.

The problems of these overheated economies would have needed solution even before the global downturn; however the recession put inevitable pressure on the Baltics to take actions. In the Baltic States most of the macroeconomic indicators deteriorated in the year 2008: GDP and consumer demand decreased, unemployment increased drastically, general government expenditures and government gross debt also grew. One of the most serious problems was the significant amount of debt denominated in foreign currency, which was responsible for the financial „bubbles" popped simultaneously with the outbreak of the crisis.

The paper examines the main macroeconomic effects of the global economic crisis on the Baltic States and presents their governments' economic policy measures taken to combat the crisis. The reactions of dealing with the recession in these three countries can be a lesson to other European countries as well.

Keywords: Baltic States, financial crisis, crisis management

1. Introduction

The European economic recession started in 2008 brought serious difficulties for every country, although not in the same extent and not for the same reasons. In August 1991, the three Baltic countries (Estonia, Latvia and Lithuania) declared their independence from the Soviet Union and after a transition recession, from the middle of the 1990s they showed a prominent economic growth thanks to the implemented reforms. But this expansion went hand in hand with serious macroeconomic imbalances, such as the continuous deficit in the balance of payments, the low economic activity, the low level of domestic savings or the FDI-driven growth.

The majority of the literature agrees that main roots of these imbalances were structural weaknesses, and these internal problems met the external financial shocks during the current recession, thus worsened the countries' economic situations.

Therefore, we examine the problems of these overheated economies, which worsened the external crisis. Then we present the macroeconomic effects of the global economic crisis on the Baltic States and finally we describe their governments' economic policy measures taken to combat the crisis.

2. Structural weaknesses of the Baltic countries

The past two decades of the three Baltic countries were largely determined by the Soviet heritage. After they declared their independence, the priority was the regain of their political independence – so they joined the United Nations already in September 1991 (Samonis, 1995) – and only then came the economic recovery tasks.

The Baltic countries followed the "SLIP recipes" (stabilization, liberalization, institution building and privatization), and in the middle of 1990s they entered the path of economic growth. But a decade later this path clearly showed that it was overheated (Csaba, 2007; Koyama, 2010).

The main driving forces of the outstanding growth were the high level of domestic consumption, the FDI inflows related to privatization and greenfield investments, and the increase of inward financial capital from the Scandinavian countries (Belyó, 2009).

It is a further structural weakness that foreign investments do not flow into the export sector but mainly into companies operating in financial, commercial or construction service areas. This does not contribute to the modernization of manufacturing and the improvement of trade balance (Koyama, 2010; Meisel, 2009).

As we have mentioned in the introduction, the so-called "Baltic Miracle" is not free of contradictions. According to Meisel (2009) there were recognizable signs of the overheated and unsustainable economy even before the crisis:

- the large and rising deficit in the balance of payments;
- the low economic activity, which characterized mainly Latvia and Lithuania;
- the lag of productivity growth from growth in incomes;
- and the consumption financed by external loans because of the low level of savings (except for Estonia).

The fixed exchange rate regime in Latvia and the currency board in Estonia and Lithuania helped the Baltic countries to reduce the inflation after the transformation, but this rigidity of monetary policies made difficult to remedy the economic imbalances and the crisis management, as well.

3. The course of the crisis in the Baltics

Blanchard et al. (2010) consider that during the financial and economic crisis emerging countries were influenced mainly by external shocks. There were two important channels of these shocks: first the exports fell considerably (resulting deterioration in international exchange ratios), then the net capital flows declined. This statement is true for the Baltic countries, as well, since due to their small size they are relatively vulnerable to international economic trends. In the following we describe the most characteristic impacts of the crisis on the Baltic region.

3.1. Key indicators in the three states

For the countries joined to the European Union in 2004, the membership gave an impetus for economic growth and convergence. The Baltic States showed an outstanding growth among these economies. However, in 2008 the previous leaders suffered the largest decline in Central and Eastern Europe as a result of the crisis (Meisel, 2009; Table 1). In 2009 the crisis caused a double-digit fall in

the *gross domestic product* (GDP) in Latvia and Lithuania, but there was a strong recession in Estonia, as well.

The growth of the Baltic countries before the crisis was characterized by rising inflation, high trade and balance of payment deficits which were getting more and more difficult to handle, growing public debt and deteriorating competitiveness. These serious problems appeared and would have needed corrections even before the crisis, but it was the global recession that made the modification inevitable (Belyó, 2009). Table 1 also shows that among the ten transition countries only Latvia was not able to register economic growth in 2010, which can be traced back to internal problems originated before the crisis.

Table 1: Real GDP growth in the EU-member countries joined in 2004 (2002-2012; %)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	2012*
Estonia	6.6	7.8	6.3	8.9	10.1	7.5	-3.7	-14.3	2.3	8.0	3.2
Latvia	7.2	7.6	8.9	10.1	11.2	9.6	-3.3	-17.7	-0.3	4.5	2.5
Lithuania	6.8	10.3	7.4	7.8	7.8	9.8	2.9	-14.8	1.4	6.1	3.4
Hungary	4.5	3.9	4.8	4.0	3.9	0.1	0.9	-6.8	1.3	1.4	0.5
Czech Rep.	2.1	3.8	4.7	6.8	7.0	5.7	3.1	-4.7	2.7	1.8	0.7
Poland	1.4	3.9	5.3	3.6	6.2	6.8	5.1	1.6	3.9	4.0	2.5
Slovenia	3.8	2.9	4.4	4.0	5.8	6.9	3.6	-8	1.4	1.1	1.0
Slovakia	4.6	4.8	5.1	6.7	8.3	10.5	5.9	-4.9	4.2	2.9	1.1
Cyprus	2.1	1.9	4.2	3.9	4.1	5.1	3.6	-1.9	1.1	0.3	0.0
Malta	2.8	0.1	-0.5	3.7	2.8	4.3	4.3	-2.6	2.9	2.1	1.3

* Estimated data

Source: own construction based on the data of Eurostat (2012)

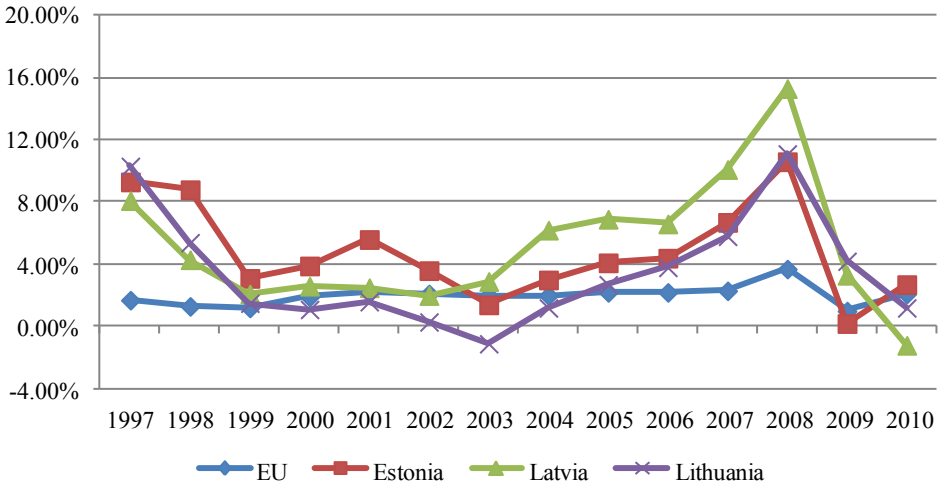
The *harmonized index of consumer prices* (HICP) in the three countries showed extreme volatility in recent years: it was increasing continually from 2003 to 2008 when reached its peak, then dropped sharply in 2009 (Figure 1). The increasing inflation was caused by higher energy and food prices, shrinking labor supply and strong wage growth, and the excessive increase in demand, which are the features of overheated economies (ECB, 2010).

The decline of the inflation in 2009 was caused by a sharp drop in domestic consumption. This is reflected in lower food and energy prices. In 2010, inflation in Latvia and Lithuania continued to decline (in Latvia there was even a deflation), but in Estonia it increased by 2.5 percentage points compared with the previous year. Analyzing the inflation, we have to take into account that annual real GDP growth in the Baltic countries was very sharp in the past decade (Table 1). In all three countries wage increase exceeded labor productivity growth each year, that generated the erosion of competitiveness. These unsustainable economic processes and the economic crisis together led to the fell of economic growth of the Baltic States in 2009 (ECB, 2010).

As we have already mentioned, the three countries have a currency board and fixed exchange rate regime, so the scope for action of the monetary policy is limited. For this reason, it is necessary to involve other areas of economic policy in order to prevent macroeconomic imbalances, such as the re-emergence of high inflation. If the gross output begins to increase, the real exchange rate appreciation is likely to lead to higher consumer price index. The convergence process is also expected to have

inflationary effect, since the GDP per capita and price levels are lower in all three countries than in the euro area (ECB, 2010).

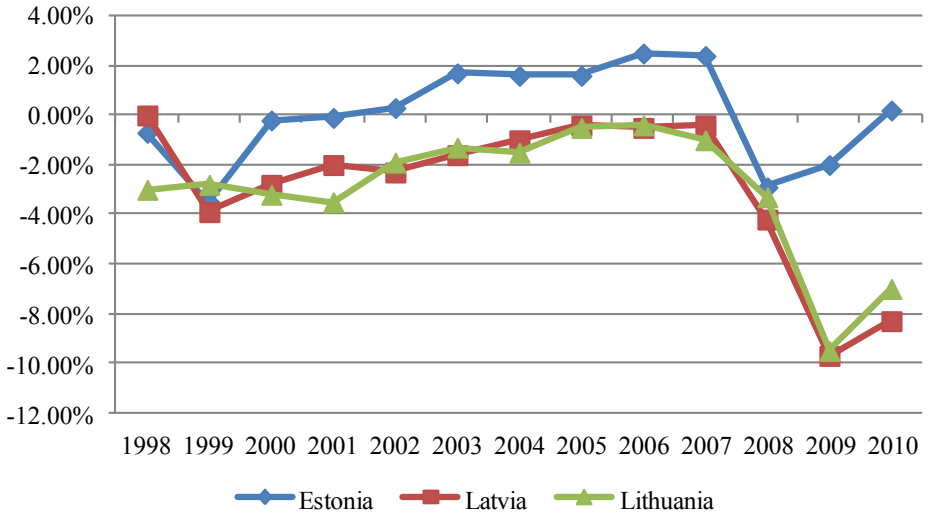
Figure 1: Annual average rate of change in harmonized indices of consumer prices (1997-2010)



Source: own construction based on the data of Eurostat (2012)

The Baltic countries had a carefully planned fiscal policy after the turn of the Millennium. From their EU-accession to 2007 (in other words before the crisis) all three states' budget deficits were below the 3 per cent of GDP required by the Maastricht criteria but in 2008 the government deficits highly increased (Figure 2). Latvia and Lithuania have already showed a deficit previously, but in 2008 the Estonian budget is turned into deficit, as well. In 2008 the Estonian and Latvian budgetary expenditures raised by 9-16 per cent, while revenues did not change significantly compared to 2007. In Lithuania there was a limited increase in government spending, while revenues stagnated in 2008.

Figure 2: Budget deficits in per cent of GDP (1998-2010)



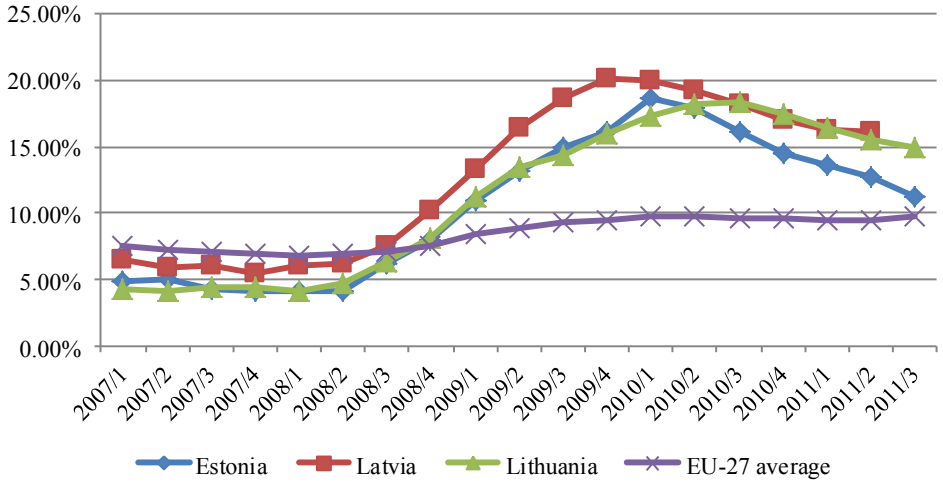
Source: own construction based on the data of Eurostat (2012)

In 2009 all three countries continued to raise their expenditures (mostly in the slowest reacting Lithuania, by16.6 per cent). In 2009 the revenues increased significantly in Estonia (by 17.3 per cent

compared to 2008), and slightly in Lithuania, but continued to decrease in Latvia (European Commission, 2010). In July 2009 the EU Council decided that the Latvian and Lithuanian deficits were excessive (10.2 per cent and 9.2 per cent in 2009 respectively), and established a 2012 deadline for correction. However, Estonia in one of the few EU Member States which has not shown an excessive deficit: in 2009 the deficit was 1.7 per cent of the GDP (ECB, 2010). In 2010, all three countries narrowed their budget deficits, and Estonia also could achieve a 0.2 per cent surplus.

After the breakout of the crisis the Baltic States could keep their *gross public debt* below the 60 per cent benchmark dictated by the Maastricht criteria. In 2010 the Estonian public debt was equal to 6.7 per cent of the GPD, the Lithuanian was 38 per cent and even the Latvian was only 44.7 per cent (Eurostat, 2012).

Figure 3: Unemployment rate, quarterly average (2007-2011)

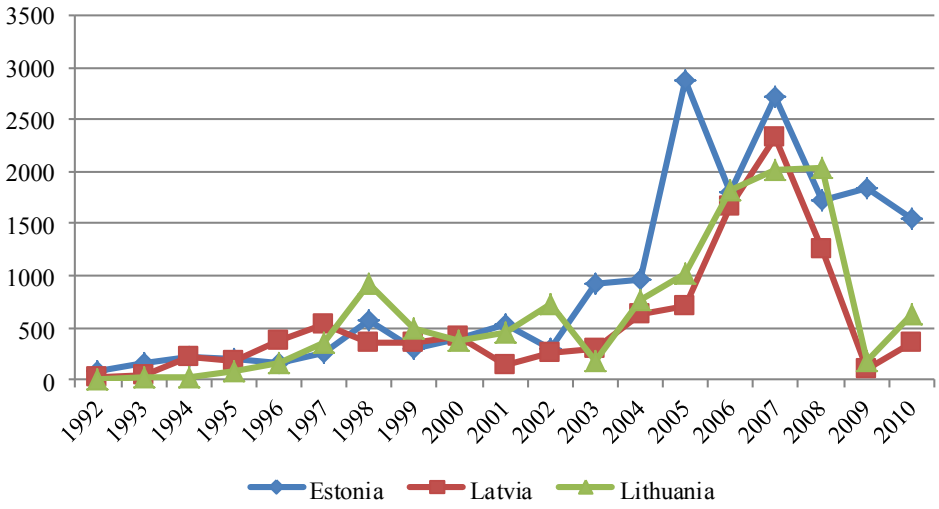


Source: own construction based on the data of Eurostat (2012)

However, the situation was worse in the labor markets. The labor market indicators responded to the crisis almost immediately. Figure 3 shows that *unemployment rates* ranged between 5-6 per cent in the first half of 2008, but began to rise in the third quarter of the year, and by the end of 2009, they exceeded 15 per cent in all three countries (Eurostat, 2012). In the first quarter of 2009 the average wages fell by 1.5 per cent, while the rate of employment declined by 6.8 per cent (Kaasik, 2009). In the same period, nominal wages in Lithuania showed a decrease of 1.9 per cent, but in Latvia the recession started only in the second quarter of 2009 (Purfield-Rosenberg 2010).

Grigonyte (2010) argues that there were various factors which attracted foreign direct investments into the region over the past two decades (Figure 4). Initially, the low labor costs and the privatization process attracted capital to the manufacturing. Later, thanks to the Baltic countries' advantageous geographical location, capital flowed into trade and logistics, as well. In recent years, financial services drew a lot of capital into the countries, too. Between 1994 and 2008, FDI inflows contributed to an average 8.6 per cent of the Estonian GDP, 5.4 per cent of the Latvian and 3.6 per cent of the Lithuanian GDP (UNCTAD, 2012). Estonia is clearly more attractive than the other two countries, especially among Scandinavian banks. From the EU accession, the majority of FDI flowed into the financial sector and real estate investments (Grigonyte, 2010). In 2008, FDI inflows came to a halt: the Baltic economies' attractiveness weakened in the eyes of foreign investors because of the crisis. A minor increase showed up only in 2010.

Figure 4: Inward foreign direct investment flows, annual (millions of USD at current prices and current exchange rates, 1992-2010)



Source: own construction based on the data of UNCTAD (2012)

3.2. Special features of the individual states

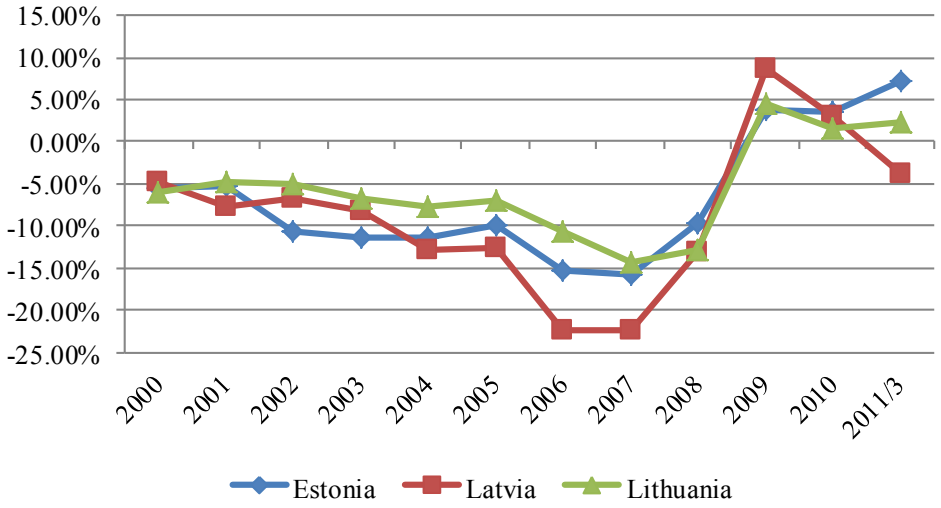
In this section we examine the possible explanations of the extremely strong impact of the crisis in the Baltics. First, we try to give a concise overview of the general characteristics of the region, and then we analyze the situation of each country separately.

The households' and businesses' foreign currency denominated indebtedness is very high in Central and Eastern Europe. This is especially applies to the Baltic States: within the year between April 2008 and April 2009, the share of foreign currency loans in total lending was 60-70 per cent in Lithuania and 80-90 per cent in Estonia and Latvia (Koyama, 2010). All this is a consequence of the sudden drop in the region's risk premium, and this is responsible for the development of financial bubbles in the past decade (Lengyel and Fejes, 2010). The cheap foreign loans fueled primarily the housing market in the Baltic countries, therefore real estate prices rose steeply, and the largest job-creating sector was the construction industry in the years of the boom: between 2005 and 2007 the sector's employment increased by 68.2 per cent in Estonia, 38.8 per cent in Latvia and 29.0 per cent in Lithuania (Masso and Krillo, 2011). Therefore job losses due to the recession were the most noticeable in this sector, as well, which means that in 2009 36-42 per cent of all lost jobs came from the constructions (Masso and Krillo, 2011).

According to Masso and Krillo (2011), the grave problems of the labor markets in the Baltic States are caused by the real estate boom and the fact that atypical forms of employment (such as part-time or temporary jobs) are not widespread. The Baltic labor markets are inflexible compared to the EU and indeed to the other Member States that joined in 2004.

Beyond these features of the Baltic countries, their crisis was also deepened by the limited instruments of monetary policy. The Estonian and Lithuanian currency board and the Latvian fixed exchange rate pegged against the euro did not allow the Baltic countries to alleviate the shock by depreciating their currencies and special efforts were required to maintain the fixed nominal exchange rates (Koyama, 2010; Lewis, 2010).

Figure 5: Balance on current account in the Baltic States (as share of GDP, 2000-2011Q3)



Source: own construction based on the data of Eurostat (2012)

The pre-crisis prosperity of the Baltic region has been accompanied by equilibrium problems. The most visible sign of this imbalance is the increasing current account deficit due to the deteriorating trade balance. For 2005, the current account deficits soared to unsustainable levels: 22.8 per cent of the GDP in Latvia, 17.4 per cent in Estonia and 13.7 per cent in Lithuania (Figure 5; Koyama, 2010; Rácz, 2009). Imports increased extremely due to the domestic consumption boom, and increase in exports was more temperate. In addition, labor-intensive manufactured goods ratio was low within total exports. Apart from the internal structural problems, the Baltic countries could not avoid the negative effects of the crisis due to their small size. Such a small countries are very vulnerable to decline in the export (Kreivys, 2010).

3.2.1 Estonia

After the turn of the Millennium, the Estonian economic growth rate was one of the highest among the emerging transition countries, associated with low inflation until 2005. After the joining to the EU, the domestic demand was fueled by the real estate boom. The prosperity of constructions was a result of the expectations of income growth, the cheap (floating rate, foreign currency denominated) loans with related tax allowance and the large amount of capital inflows (OECD, 2009). Therefore the financial sector and the housing market are linked with many threads. However, both sectors faced difficulties due to the financial crisis: property prices fell, borrowing options narrowed and so domestic demand declined gradually from the second half of 2008. Most of the credits had been financed by foreign parent banks' loans, so the Estonian national bank had to expand its cooperation with its Nordic partners in the fields of crisis management and bank supervision (OECD, 2009).

The Estonian pro-cyclical fiscal policy worsened the crisis situation, since in the boom years the government increased its spending and reduced tax rates (OECD, 2009). Although the public debt remained far below the EU average and the Maastricht criteria even in the years of the crisis, the government was still unable to prevent the private sector's indebtedness. In Estonia, most of the private investments were financed by foreign capital inflows, and as a consequence the balance of payments was negative.

In Estonia GDP fell by nearly 10 per cent in the fourth quarter of 2008 and about 15 per cent in the first quarter of 2009compared to the corresponding period of the previous years. Both domestic and

foreign demand declined and the companies' revenues decreased by 20 per cent at least. The volume of foreign trade with the key partners was shrinking by 30 per cent or more (Kaasik, 2009). In 2009 both exports and imports declined, but the latter to a greater extent (by about one third), and thanks to this, Estonian balance of trade turned positive again – for the first time since 2003 (UNCTAD, 2011).

3.2.2 Latvia

One of the most emblematic countries in the current crisis is Latvia. The recession here was extremely severe in the last quarter of 2008 already. Somewhat paradoxically, it realized a double digit annual GDP growth between 2005 and 2007 – uniquely in the EU. The driving forces of this growth were the FDI inflows and cheap loans (Blanchard et al., 2010; Lengyel and Fejes, 2010).

The severity of the crisis in Latvia was partly the result of high inflation. After the EU accession of the country the lat became pegged to the euro, and the previously stable inflation rate started to soar: it increased to 10.1 per cent for 2007 that thwarted the Eurozone accession in 2008 (Eurostat, 2012). The price increase is traceable to the consumption boom and the housing bubble, and the sharp increase of the financing loans (Koyama, 2010). The loans' annual growth rate was more than 50 per cent between 2005 and 2007 (Blanchard et al., 2010; Lengyel and Fejes, 2010). Foreign (primarily Swedish) banks multiplied in the country in the past years, thus by the end of 2007, foreign currency debt rose to 86 per cent of total loans and Latvia has become increasingly exposed to external shocks (Blanchard et al., 2010). For 2007 the private sector's loans amounted to 100 per cent of GDP (Lengyel and Fejes, 2010).

After the EU accession the wage-increase surpassing productivity growth and the inflation have weakened the Latvian export competitiveness. For this reason, a huge trade deficit emerged and resulted current account deficit from year to year. The nadir lasted from the second half of 2006 to the end of the year 2007 (Eurostat, 2012).

The neo-liberal governments supported the growth with pro-cyclical economic policy, and sought for internal demand-based growth instead of increasing the competitiveness of the productive sector (Lengyel and Fejes, 2010). Therefore the signs of the overheated economy have occurred already from 2005, and culminated in 2007. After the property prices reached a maximum, there was a decline by 29 per cent in 2008 (Skribans 2009). Thus the loan-to-value ratio diminished dangerously, and economic growth started to decline at the beginning of the year 2008 (Blanchard et al., 2010). In order to offset these processes, the Latvian government and central bank have tried to take measures that throttle consumption – and while domestic consumption began to slow down, these efforts did not mean an immediate solution (Koyama, 2010; Lengyel and Fejes, 2010).

Several factors contributed to the growth of the Latvian public debt in 2009. Besides the high government deficit and the IMF loan, the bank consolidation was important, as well. The nationalization of the Parex Bank and the provided liquidity and guarantees overall took 9.5 per cent of the GDP (Palócz, 2010). Therefore not only the inflation, but the public debt Maastricht criteria were also threatened (Lewis, 2010).

3.2.3 Lithuania

At the beginning of the European crisis Lithuania's situation did not seem to be as dreadful as the other two Baltic economies', since the GDP was able to expand in 2008. But this increase of 2.9 per cent was the lowest since the turn of the Millennium, and for 2009 it began to decline (Table 1). The GDP decreased by nearly 15 per cent in 2009, due to the declining consumption, investment and

foreign trade and the increasing unemployment. Thus it became clear that Lithuania could not "swim with" the crisis as easily as initially had hoped. The economic downturn slowed down mainly by the net exports (Bank of Lithuania, 2010).

After the democratic transformation, the country's performance was outstanding in many ways: economic growth, GDP per capita, external debt and – until 2007 – inflation rate was all favorable. Price liberalization, privatization and foreign trade have reached the level of well-functioning market economies' for 2009. This growth path was based on conservative economic policy, the main drivers of which were domestic consumption and exports. The assistance of the European Union, the rapidly expanding credits and the appearance of foreign (mostly Scandinavian) banks also played a major role in the economic growth (Lengyel and Fejes, 2010).

Similarly to the other two Baltic countries, domestic consumption in Lithuania was exaggerated, thus the current account deficit, the private sector's indebtedness and inflation went out of control even before the crisis: external and internal imbalances clearly occurred around 2007 (Lengyel and Fejes, 2010).

4. Tools and results of crisis management

In the following we attempt to present the measures taken in order to mitigate the negative effects of the crisis. These measures can be divided into two groups: *internal* (taken by the country's government and national bank) and *external* (related to the EU, IMF or other international organizations) steps.

4.1. Latvia

We have seen earlier the reasons why Latvia was highly exposed to external shocks, and consequently, how severely the crisis affected the country from the last quarter of 2008. Therefore, in December 2008 the government requested for an aid package. The EU, the IMF, the World Bank and the Nordic countries pooled 7.5 billion euro (10.5 billion US dollar) for Latvia (Andersen, 2009). This amount meant a serious help if we compare it to the Latvian GDP (33.7 billion USD in 2008 and 25.9 billion USD in 2009 (UNCTAD, 2012)). In order to be allowed to drawdown the loan, the Latvian government had to take various stabilization measures, such as tightening its fiscal policy by about 7 per cent of the GDP value (Lewis, 2010; Rácz, 2009). However, the loan was not sufficient for defending the fixed exchange rate, so the Bank of Latvia had to use nearly one fifth of its reserves for this purpose (Lewis, 2010).

Political consequences of the crisis occurred quickly: in February 2009 the prime minister was forced to resign and the new government formed in March. Its first actions included the development a much stronger and more coherent crisis management program that primarily focused on restraining expenditures – as the IMF had prescribed. However, there were almost no resources left for the economic stimulation, therefore only certain sectors (such as conversion of timber, pharmaceuticals and some heavy industry) was given priority by the government (Németh, 2009).

The main measures to reduce expenditures were the following: severances and reducing wages in the public sector, cuts in the health and education system, reduction of pensions and maternity benefits (Meisel, 2009; Palócz, 2010). The revenue-raising measures were more considerable (Palócz, 2010):

- increase the rate of the personal income tax from 23 to 26 per cent;
- increase the VAT rate from 18 to 21 per cent;

- increase the excise duties on alcohol, tobacco and energy;
- increase the property tax and vehicle taxes;
- introduction of new taxes.

According to Németh (2010) Latvia's situation was still critical at the beginning of 2010: unemployment rate was higher than 20 per cent and because of the growing burdens of taxation which affected the whole population. Since the government rejected the devaluation of the Lat, export growth was discontinued. In addition, all important economic sectors were decline.

4.2. Lithuania

The current Lithuanian government took office in December 2008, so the crisis management immediately became its most important task (Kreivys, 2010). Although the crisis affected the country strongly, there was no instant need for an IMF loan 2008. In order to avoid the need of borrowing from external organizations in the future, the government adopted the first elements of its saving program (Meisel, 2009). This includes the strengthening of the financial sector, the increase of VAT rates and reducing public spending and the wages in the public sector. The devaluation of the Litas has not been executed, which was disadvantageous for exporters, but prevented the bankruptcy of borrowers with euro denominated the mortgage loans (Németh, 2009). The resulted high interest rates made the loans more expensive. To counteract this, in the beginning of 2009 the state's financial funds were expanded. These funds provided preferential loans to enterprises, especially exporting small and medium enterprises, thus helping their survival in order to maintain jobs and restrain the fall in exports (Kreivys, 2010; Rácz, 2009).

In 2009 Lithuania still did not need an IMF loan, but in March it agreed with the European Central Bank on a loan of 1.132 billion euro for the EU co-financed projects. Additional external resource was the 500 million euro Eurobond issued on the international financial markets (Lengyel and Fejes, 2010).

In July 2009 the EU launched an excessive deficit procedure against Lithuania. For this reason, the government sought to restore the fiscal balance as soon as possible: public expenditures were intended to be reduced by 2 per cent annual between 2010 and 2012. As a first step, wages in the public sector was reduced by 5, then 8 per cent from August 2009. This tendency continued in 2010: salaries of public officials and public employees fell further, as well as public managers' and politicians' (Palócz, 2010). In order to tighten the austerity measures, in the spring of 2009 modifications were introduced in the tax system (Palócz, 2010):

- reduction of personal income tax by 9 percentage points to 15 per cent;
- increase the corporate profit tax by 5 percentage points (Meisel, 2009);
- increase the VAT rate by 1 percentage point to 19 per cent in the beginning of 2009, then to 21 per cent in September 2009;
- increase the excise duties.

Since Lithuania – in contrast with Latvia – had resources for economic stimulus, too, some of the sectors of the Lithuanian economy started to grow at the end of 2009. The situation of the construction industry began to be normalized and trade revived. The position of the Lithuanian banks was satisfactory, as well. So the country did not need further crisis management packages in the beginning of 2010. But at the end of 2009, inflation was surging and reached 4.2 per cent – which was the second highest in the EU after the Romanian. Politicians think that the main instrument for cutting government expenditures is the simplifying of public administration and public services. This program

causes much lower social tensions than the drastic Latvian package, but it is still not easy to implement such measures (Németh, 2010). Therefore an institutional reform began in 2009 to promote transparency in the budget. This reform was supposed to build institutional guarantees into the budgetary system, which aimed at enhancing budget planning, implementation, monitoring and transparency (Palócz, 2010).

It is worth to point out that the Lithuanian government attaches great importance to attracting foreign direct investments in the country. Therefore, it tries to create a favorable legal and economic environment for foreign investments, built on high qualification level and advanced infrastructure, mainly in the service sector (Kreivys, 2010).

These measures led to the Lithuanian economy began to stabilize by the end of 2009: in 2010 the domestic demand gradually revived, the real estate market seemed to grow stronger, exports nearly reached the two years before peak, and the GDP also increased again. Like for Latvia, for Lithuania it was important to fulfill the Maastricht criteria and join the Eurozone as soon as possible (Zabuliene, 2011).

4.3. Estonia

Among the Baltic States, the position of Estonia seems to be the most stable. The fact that the country did not have to postpone the introduction of the euro – despite the crisis and the related austerity measures – demonstrates this well. There was no thought of the need for IMF loan in 2008. In February 2009 the government brought a budget amendment connected to a vote of confidence before the legislature. The vote confirmed the government and accepted the austerity package, the main element of which was the 10 per cent reduction in public expenditure, cuts in the public sector employees and wages (Meisel, 2009). Thus the country managed to adopt the euro and so avoid financial institutions' bankruptcies due to the termination of the exchange rate risk. Otherwise, it is true not only for Estonia, but for the other Baltic countries, as well, that instead of their currencies depreciation, they choose the so-called "internal devaluation" (Aslund, 2011; Cameron, 2010). In order to achieve a balanced fiscal position, the Estonian government offset the previous increase in its spending (between 2007 and 2009) with the reduction of expenditures and with the revenue increases, as well. The most important measures taken in the past years are the following (Palócz, 2010):

- in 2009, excise tax of some products was raised an the VAT rate was increased from 18 to 20 per cent;
- the personal income tax rate was reduced (from 26 to 21 per cent), while the lower limit of compulsory social insurance contribution was raised;
- sick pay was taken away;
- tax exemption for student loans was eliminated;
- government allocated funds to local authorities were reduced;
- transfers to the private pension funds were suspended for two years from July 2009;
- raise of retirement age from 2017 was decided.

The Estonian government is to make economic stimulus measures. In the spring 2009, a 360 million euro credit line was approved for various goals: to increase the small and medium enterprises' accession to credit and to maintain their exports; to finance tourism and research and development; as well as for job creation and for social programs. In May 2009 the government signed a 700 million euro loan agreement with the European Investment Bank (Meisel, 2009). The aim of the agreement was to stimulate the economy. More than three-quarters of the amount was intended to be spent for

human resource development. The first measures in the beginning of 2010 aimed to boost the labor market, since Estonia's most serious problem was the 14 per cent high unemployment (Németh, 2010).

Since Estonia has no major domestic financial institutions (98 per cent of the banking sector is owned by foreigners), there was no need of the government's sources to bail out the financial sector. The Scandinavian parent banks made the crisis management steps (Kaasik, 2009). The Estonian government accumulated reserves in good times, and this provided the necessary room for maneuver to contribute to stabilizing the financial system. The reserves enable the government to finance the budget deficit without having to obtain funds from the markets, but this is only a temporary solution. It is very important to revive and maintain the markets trust in the economy, so the Estonian government had to strengthen its fiscal position (Kaasik, 2009).

It is a real success for the country that despite the crisis it managed to comply with the Maastricht criteria and it could join the Eurozone on the 1st of January 2011. The common currency eliminates the exchange rate risk, reduces transaction costs, and attracts foreign investors, who are primarily interested in metal and engineering industry, chemical industry, business services and information technology (Ummelas, 2011).

5. Conclusions

After their democratic transformation, the Baltic countries created an economic model that aimed at closing up to the developed countries of Western Europe. This model – built mostly on the stimulation of consumption – proved to be successful. After their accession to the EU in 2004, the Baltics showed a prominent, however controversial economic growth. It became increasingly apparent that the three economies are overheated. The resulting tensions would have needed solutions even without the global crisis, but the European recession made it urgent for the countries to take the long overdue steps in order to regain the economic balance.

In 2008 the Baltic countries' GDP growth rate dropped drastically, unemployment rate and inflation soared, budget deficits and public debt increased due to the crisis. Although the region had been attractive for foreign investors since the accession to the EU, in 2008 and 2009 FDI inflows have declined, especially in Latvia and Lithuania.

After the sudden and considerable recession, in 2010 several macroeconomic indicators showed a favorable image, but there are still tasks to be performed in order to recover from the crisis. As a first step in crisis management, each country's government sought to cut public expenditure by reducing social spending, pensions and wages in the public sector. On the other side the governments started to increase their revenues by raising different tax rates.

Latvia was shocked by the crisis mostly, therefore unlike Estonia and Lithuania, it could not start an economic recovery program in the first half of 2009 yet. The main elements of the other two Baltic countries' recovery programs were the promotion of attraction of foreign capital, the facilitation of the domestic SME's borrowing and the promotion of export.

During the crisis management process, the very narrow margin of monetary policies made the three countries' situation more difficult. But the Baltic States have chosen to introduce the euro as soon as possible instead of the currency devaluation.

The Baltic leaders was often forced to take drastic steps in the crisis management, but the governments' responses to the recession and the policymakers' behavior patterns can be exemplary to other countries, as well.

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Effects of the debt crisis on the EU-China relations

Júlia Mező Beáta Udvari

The economic (debt) crisis has become serious in the EU and in the Eurozone especially in the last few months. The European Financial Stability Facility (EFSF) was created as an instrument to handle this situation. But the financial contributions of the EU Member States seem not to be enough and China appears as a potential contributor. It is often cited that China offered Portugal and Spain in March 2011 to support their crisis management. However, recently, there are attempts from the side of the EU to convince China take part in the EFSF. Thus the question raised often in Europe is the following: Will China contribute to the EFSF? If yes, what conditions will the country raise? What are the arguments of the Chinese capital both in China and the EU? Consequently, our research is focusing on the impacts of the global financial and economic crisis on the new relations between the European Union and China.

China's enormous reserves enable the Asian financial assistance to European countries in crisis management but there are a number of questions related to this. The main findings of this study are that China can benefit from its European crisis management from many aspects, as the EU is the largest market for the Chinese products. Furthermore, reserve currency diversification and political considerations cannot be neglected, either. But the assistance may have serious risks for China: not only the expected return on investment is at a stake, but internal social and political tensions can emerge from helping the Europeans who still live in significantly higher wealth than most of the Chinese people.

Adopting Chinese capital raises questions for the European Union, as well. China may impose such terms by which the EU may become vulnerable and get into a dependent position, then presumably it will be difficult to solve the cooperation.

Keywords: European Union, debt crisis, China, crisis management

1. Introduction

Recently, it is a well-known fact that capital doesn't flow from developed to developing economies but between rich countries. Lucas (1990) gives a few explanations for this phenomenon. However, since the early 2000s, capital has been flowing specifically from emerging economies (especially from China and oil-exporting Arabian countries) towards developed countries, primarily to the United States. It is a paradox situation that today China as a developing country finances the United States' debt. Because of the low savings rate of the US, China's enormous currency reserves help the Americans to be able to consume more than they produce (Morrison and Labonte, 2011). This leads to global imbalances between savings and investment, and these imbalances play an important role in the current crisis in most countries.

Owing to managing the financial crisis, budget deficits both in Europe and in the United States have become more significant recently because of the high social expenditures. By now the main issue for Europe is how to reserve its competitiveness. Although the Lisbon Strategy declared that the EU would be the world's most competitive economy by 2010, this aim has not been achieved, and the new long-term strategy (EU 2020) is about to raise the competitiveness (employment, innovation, energy, environment, poverty) while handling the negative effects of the crisis. In general, Europe has been

facing serious challenges: achieving technological development, improving employment and reducing government deficits. Since the EU is an open integration in an economic sense, its position is strongly affected by global processes, too. It is clear that today while the renminbi is undervalued, the dollar is highly overvalued owing to its role as a "global currency". A consequence of the crisis can be a massive appreciation of the euro against the dollar, which would continue to worsen the EU's competitive prospects.

This paper concerns the process of the deepening of EU's crisis and the possibility of cooperation between the EU and China to handle it. Our research objective is to determine the motives and risks of the cooperation from both sides. The basis of the analysis is that it is often cited that China's foreign exchange-reserves (amounts to 3 197.5 billion USD in 2011 according to the SAFE (2012)) enable China to finance the Eurozone's deficit. The first section deals briefly with the root of this entire question, and gives an overview about the European debt crisis and its deepening. Then we present the actions taken so far corresponding to the common Chinese-European crisis management. After it we examine the background of China's approach to Europe and the (economic and political) consequences that the EU needs to take into consideration, as well.

2. Europe's deepening crisis

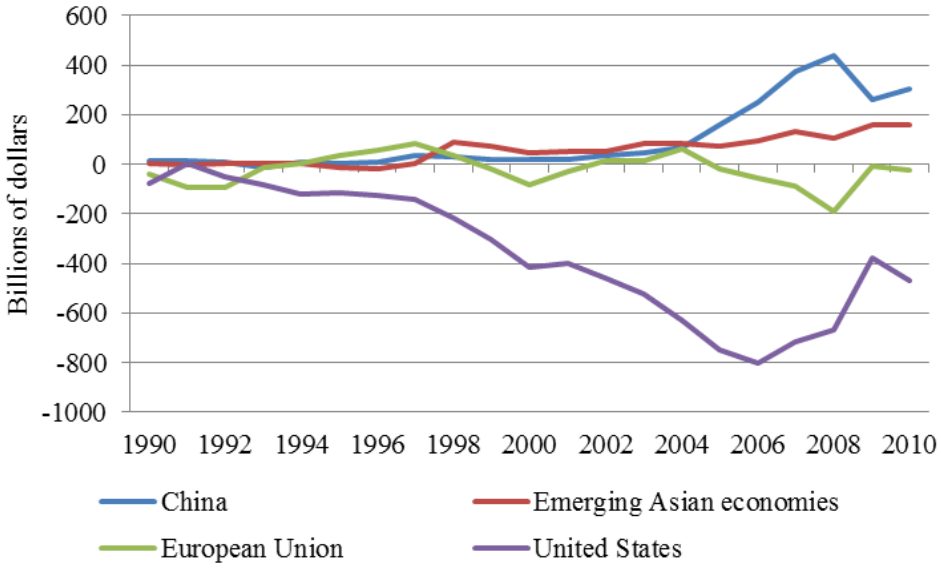
Europe and the United States live in dependence on each other, and as a result of it, the European Union is not able to avoid any economic failures, turmoil coming from the United States (Dallago and Guglielmetti, 2011; Wyplosz, 2010). This happened in the case of the 2007 crisis, as well. In this section, we give a short overview about the situation of the European Union during the crisis but avoid describing the crisis management of each country. We are trying to answer the following questions: who should finance the crisis management? Should the larger economies (such as Germany or France) take more responsibility for handling the crisis?

2.1. Global imbalances

Several factors contributed to the increase of global imbalances, like consumption-fueled growth in the US which resulted fiscal deficit and households' indebtedness (thanks to low interest rates), that fostered a dramatic rise in the current account deficit (Botos, 2007; Dunaway, 2009). Meanwhile savings (denominated in USD) and current account surpluses of emerging economies have gradually increased, especially in China (Figure 1). China could hold this position owing to its enormous exports and China's policy of keeping its currency, the renminbi depreciated.

The role of the European Union in the global imbalances is different. The current account of the EU was reasonably balanced in the last two decades (aside from the year 2008), as shown in Figure 1. But the aggregated data may be misleading. The Eurozone's data are similar to the EU's, but if we examine the individual countries we can explore significant differences in the balance of payments. The worst performing EMU members (Spain, Italy, France, Greece and Portugal) were continuously increasing their deficits since the early 2000s but this was offset by Germany's and the Netherland's surplus (UNCTAD, 2012). All these imbalances are somewhat reasons for a global and European crisis.

Figure 1: Balance of payments

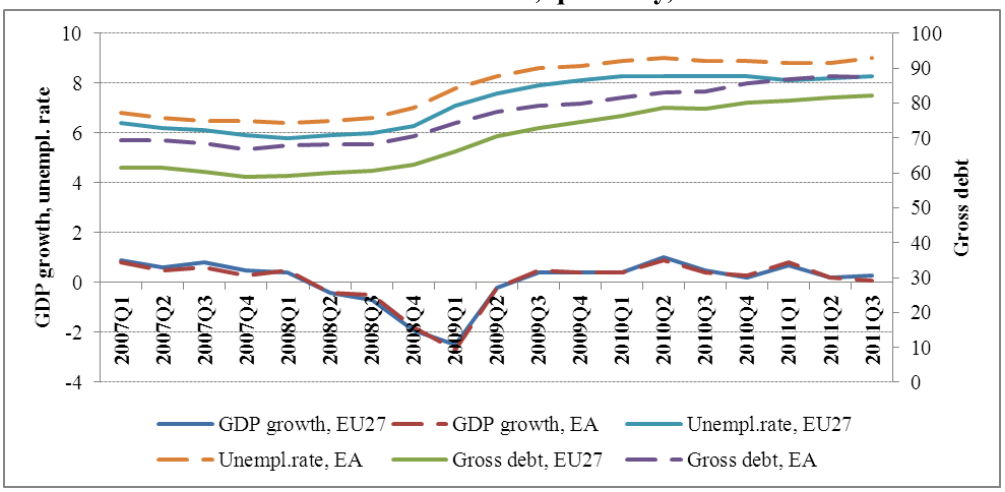


Source: UNCTAD (2012)

2.2. Crisis in the EU

The global financial (later economic) crisis stemming from the United States has had negative impacts in the European Union since 2008. Since then several economic problems have occurred in the European Union. The impacts of the crises can be seen on some selected economic indicators (Figure 2). The figure contains quarterly data of the European Union and the Eurozone as a whole. Regarding the GDP growth, the EU 27 and the Euro area presents the same trend: from the second quarter of 2008 the GDP started to decrease, and a year later, from the second quarter of 2009 started to increase again. However, there is a slight volatility: the peak was in the second quarter of 2010, then came again a small drop, but nowadays the GDP growth seems to be stagnant.

Figure 2: GDP growth, unemployment rate (%) and gross debt (% of the GDP) in the European Union and in the Eurozone, quarterly, 2007-2011



Legend: EA: Euro area

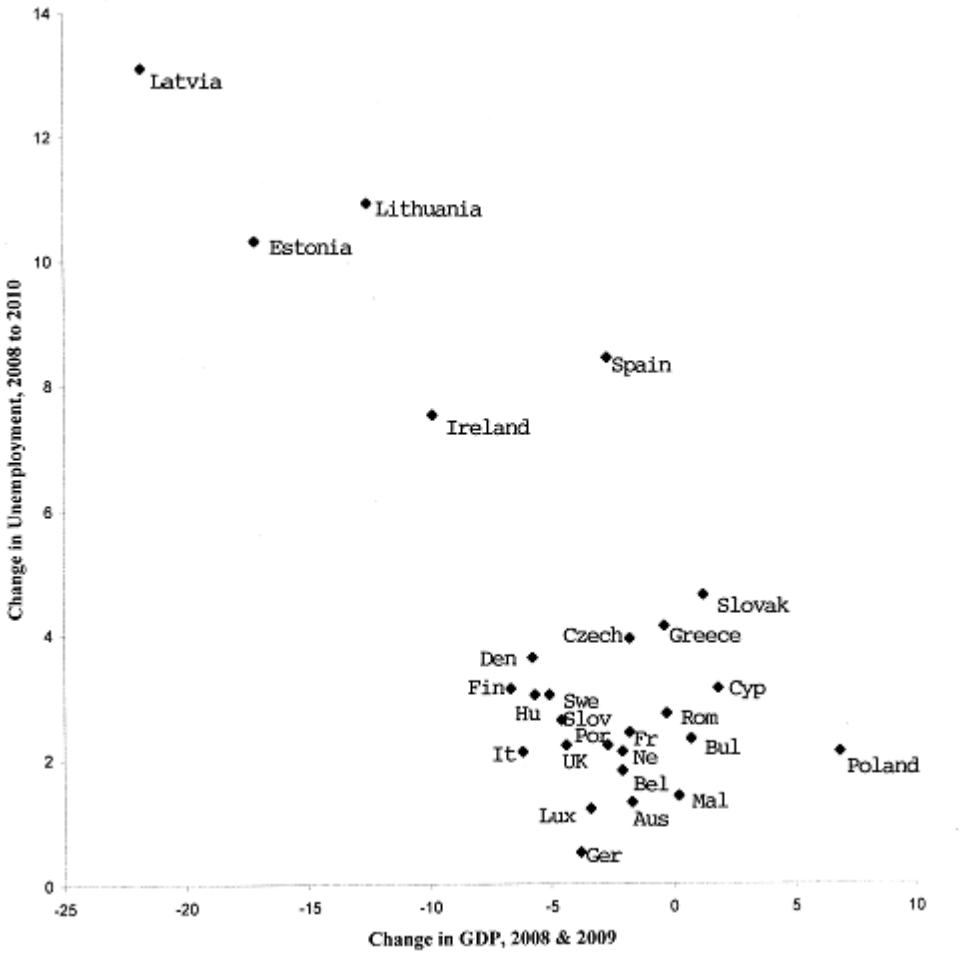
Source: own construction based on data of Eurostat (2012)

Regarding the unemployment rate, the Euro area suffers from higher unemployment: it has exceeded 9 per cent recently, while the whole EU stands at about 8 per cent. Note, that there are great differences

among Member States: the largest unemployment rate can be seen in Spain (around 20 per cent according to Eurostat). Furthermore, the government gross debt has been increasing continuously: the Euro area nears 90 per cent of the GDP, while the whole EU stands near 80 per cent of the GDP. These aggregated data gives a short overview how the European Union experienced the crisis from 2008 onwards. The aggregated data cover the differences between the performances of the Member States, which may mislead.

Member States of the European Union reacted to the crisis in different ways (Figure 3). Some countries did not experience any recession or only a smaller one (Poland or Malta), while other states dropped into a great recession along with very high level of unemployment (for example, Spain or Ireland and the Baltic states). Altogether, the former cohesion countries have been the main losers of the crisis. The reason for this is that they suffered from several structural problems before the crisis appeared in Europe; it was the last "shot" for these countries. In the first years of the 2000's, a bubble appeared on the real estate market in several countries, such as Ireland or Spain. Both of them joined the Eurozone what resulted lower interest rates in the countries. As a result, rules of lending became looser, therefore the demand for properties increased heavily, raising their prices, as well. Before 2008, signs for a crisis appeared in these countries and the crisis arriving from the United States made these effects much stronger.

Figure 3: Changes of unemployment and GDP growth in EU Member States



Source: Cameron (2010, p. 26)

Kondor and Staehr (2011) investigated the impacts of the global financial crisis on the output performance of the EU-countries. Using regression models the authors found that financial deepening and high financial leverage (including variables such as current account deficits, private loans growth, net investment position), and large degree of trade openness negatively affected the output performance, while the level of financial depth did not have a negative effect. Furthermore, government deficits and government debts did not have an impact on output performance. All these refer to the fact that the larger the degree of financial and economic openness was, the larger losses the countries experienced in their output performance.

Managing the crisis has become a great challenge in many countries and the EU as a whole. The tools for this were almost the same in the Member States: offering guarantee for bank deposits, bailing banks out, or trying to handle the unemployment. Furthermore, the crisis affected several common policies of the EU: for example, new investment projects were accelerated, and as the cohesion policy ensures large financial resources, this policy cannot avoid the effects of the crisis (Radulescu and Ioan, 2009). Furthermore, the Eurozone fall into a deep crisis. This crisis is hard to manage since the countries face with different problems: sovereign debt crisis in Greece and Portugal, real-estate and banking crisis in Ireland and Spain or bank vulnerability in Germany and France (Hellwig, 2011). Since the Eurozone contains the largest economies of the European Union, the negative impacts cause difficulties in the whole integration. Nevertheless, the crisis in the Eurozone reflected that there are unsustainable structural components in the monetary union, and the gap between the periphery and the more resistant countries became wider as a consequence of the crisis (Dallago and Guglielmetti, 2011).

The need for financial resources is urgent. Instead of analyzing the potential reforms of the Eurozone (see, for instance, Hellwig, 2011), we are to investigate a potential lender of the financial assistance, and we pay great attention on how China may participate in the European Union's crisis management and what kind of motivations may stand behind its assistance.

2.3. When does Europe survive/overcome the crisis?

In many countries it took several years to handle the crisis. A good measure for this is the real GDP growth and the years needed to reach the pre-crisis growth rate (Table 1). In 2009, almost every country experienced GDP decrease, except China with its more than 9 per cent growth. Regarding the years needed to come back to the pre-crisis level, it varies across countries: China needed no years, while the United States only one. Furthermore, there are great differences between the EU members: Germany and France are to reach their pre-crisis GDP level, other Eurozone members such as Greece, Ireland, Italy, Portugal and Spain are expected to be still under that level in 2012. However, Spain is nearer to that level than Greece or Ireland.

In a crisis situation, the protectionist trade measures are in the foreground, since countries are about to hinder deeper crisis and try to ensure market for the domestic producers to survive the difficult period. However, the European Union keeps using antidumping measures – and Vandenbussche and Viegelahn (2011) found that these measures target mainly China, meaning that the European Union – before, during and after the crisis – tries to protect its single market, especially from countries and industries which have similar product mix. Furthermore, the authors found that there is no significant difference between pre-crisis and during-crisis antidumping measures of the European Union. In general, the European Union was and still is a protectionist economy.

Table 1: GDP growth (%), changes of GDP year to year and the number of years achieving pre-crisis level in the EU and in selected countries

GDP growth / Country	2009	2010/2009	2011/2009	2012/2009	Number of years
World	-0.5	104.5			1
USA	-2.6	100.1			1
China	9.2				0
EU-27	-4.1			101.5	3
Eurozone	-4.1			100.9	3
Germany	-4.7		101.1		2
France	-2.5		100.5		2
United K.	-4.9			100.2	3
Greece	-2.0			91.8	More
Ireland	-7.6			93.7	More
Italy	-5.2			98.4	More
Portugal	-2.5			96.9	More
Spain	-3.7			98.5	More
Hungary	-6.7			99.8	Just

Source: Inotai (2011, p. 363)

The aforementioned data in Table 1 reflect that there are economic problems in the Eurozone, mainly with the former cohesion countries (Ireland, Greece, Spain and Portugal). Therefore the question is raised: to avoid infection, is there any possibility to finance the bailout by common financial resources?

2.4. Who finances (should finance) crisis management in the European Union?

Managing the European crisis required a new kind of cooperation from the part of the EU and Eurozone members (Inotai, 2011). And the question is: who has to finance the crisis management? Since the EU budget is very narrow (equals to 1 per cent of the EU GNI), and it finances only common policies (including agriculture, cohesion, research and development policy), there is only a small policy space to act together in a crisis and to handle its consequences through common financial resources (Dabrowski, 2009). As a result, at first, the countries themselves were responsible for managing their own problems, resulting growing budget deficits. This situation is described by Inotai (2011, p. 368.) as "management of the costs of the crisis management". But later more serious problems came up jeopardizing the Eurozone itself. The greatest challenge in the Eurozone is connected to Greece and handling the Greek debt crisis, and to avoid the infection to other peripheral countries such as Portugal or Spain.[1]

Gros and Mayer (2011) estimate that more than 2 trillion euros (exceeding 20 per cent of the Eurozone's GDP) is needed for bailing out the whole periphery in the Eurozone (Greece, Italy, Ireland, Spain and Portugal) – and this should come from European sources. However, the EU-27's contribution to the EU budget amounts only to 108 billion euros. Therefore the question is unambiguous: who should finance it? To rescue the Eurozone, the so-called European Financial Stability Facility (EFSF) was established in May 2010 to provide loans to countries with financial difficulties, to finance recapitalization of financial institutions, and to intervene in the debt primary and secondary markets (EFSF, 2012), However, Gros and Mayer (2010) emphasize that the fund of the EFSF is not large enough to stabilize markets.

[1] This paper is not about to describe the crisis management and the deepening crisis in several countries, therefore these issues are missed.

The financial crisis has impact on the EU budget. Inoescu and co-authors (2009) concluded that the financial crisis results a loosening budgetary discipline and an attempt is growing to find a solution not directly financing the EU Institutions from the Member States. Furthermore, in the European Union, the solidarity support does not mean a simple loan from the EU, but a loan from the Member States according to their share of the EU budget (Table 2). As a consequence, Germany – as the largest contributor to the EU budget – has to handle the EU crisis in the largest way (Türke, 2011). Furthermore, Greece is among the greatest beneficiaries. It can be accepted that Germany does not want to finance the problems of other countries.

Table 2: The largest contributors to the EU budget (per cent)

Country	Average of 2007-2009	2010
Germany	19.3	19.5
France	16.6	16.7
Italy	13.5	13.3
Great Britain	10.4	10.9
Spain	9.5	9.3

Source: own construction based on Türke (2011, p. 22)

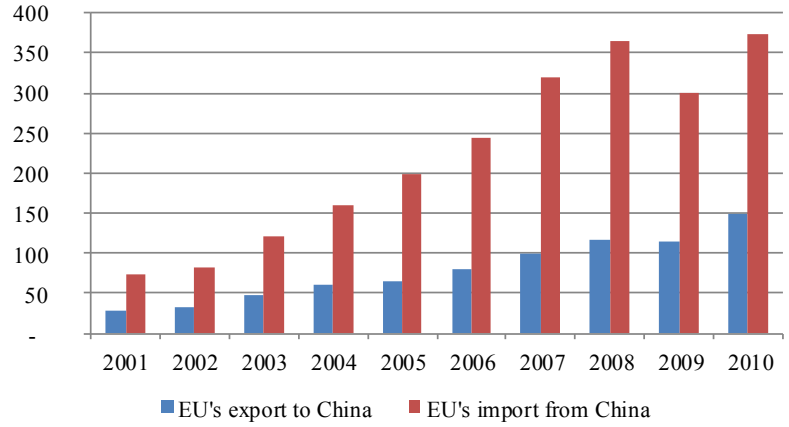
If there is a great debate about the share of costs and there are limitations in resources in the Member States (of the Eurozone), who could help stop a larger problem? If Germany (and the big Member States) does not want to help owing to their lower capacities, who could? As there are attempts both from the European and from the Chinese side for a potential Chinese financial contribution, we are to investigate this opportunity deeper.

3. China's approach to the EU

The collaboration between the European Union and China is not a new idea: the cooperation has evolved not only due to the crisis. There are several contracts between the two economies (including the bilateral agreements between China and the EU Member States) and since the early 2000s the two economies have considered each other as strategic partners (Szunomár, 2011) and negotiations started on a Partnership and Cooperation Agreement in January 2007 which would further improve the trade and investment relations between the EU and China (European Commission, 2006). This agreement is reasonable as China is the EU's second trade partner, surpassed only by the USA, and the European Union is China's biggest foreign trade partner (Zhimin and Armstrong, 2010). But the European trade with China is imbalanced: China runs a vast trade surplus with the EU, and the European import from China has been growing in a larger extent than the European export to China (Figure 4). This is the world's biggest bilateral trade imbalance as since 2006 the EU's trade deficit with China has been higher than the deficit with the US (Godement, 2011; UN Comtrade, 2012).

Nevertheless, the Chinese-European relations have not only economic but also political sense. Therefore, a series of annual EU-China summit started in 1998 as a stage for political dialogue (Zhimin and Armstrong, 2010). However, this strong relationship enables the pos-sibility of a sort of joint crisis management. Now we detail the main events of the Chinese-European cooperation in handling the EU's depression.

Figure 4: The EU-China trade relationship, 2001-2010 (billions of USD)



Source: UN Comtrade (2012)

3.1. Chinese offer for Greece, Spain and Portugal

On the field of a potential common crisis management, the first steps were taken by China, but in this early period, these actions were severely bilateral. This means that at first China did not approach the Eurozone or the EU as a whole but only a few Member States, namely Greece, Spain and Portugal.[2] Common European turning to China happened only later, and parallel to this, former bilateral discussions continued and new ones started (primarily with Italy). Here we present China's movements to the three Eurozone countries for collaboration in reducing their general government gross debts.

- Wen Jiabao, Premier of the Chinese State Council declared already in May 2010 that China was ready to help Greece overcome its debt crisis (Reuters, 2010). This was not a special and direct offer from China; it meant only the Chinese support of the International Monetary Fund and the European Monetary Union (EMU) in aiding Greece. But it highly reflects on China's interest in not letting the Eurozone's crises deepen. Finally, in October 2010 China made a direct offer to buy Greek government bonds, and the two countries signed agreements on investment and trade (Daily Mail Online, 2010; Tandy 2010).
- At the end of the year 2010 China promised to buy Portuguese government debt of 5 billion euros (4 billion dollars) (Daily Mail Online, 2010). A year later, in December 2011 China Three Gorges Corp energy producer bought a 21 per cent share in Energias de Portugal for 2.7 billion euros (Financial Times, 2011). This transaction was a real success in the Portuguese privatization process.
- In January 2011 Chinese Vice Premier Li Keqiang visited to Spain and started to reconcile about signing corporate deals and buying Spanish public debt for approximately 6 billion euros (7.5 billion dollars, equal to the total sum of the Greek and Portuguese purchase) (Cala, 2011; Gleave and Lawson, 2011). In fact, the major part of the commercial contracts was realized in October 2010, when Chinese Sinopec bought 40 per cent of the Spanish Repsol's Brazilian subsidiary (for 7.1 billion dollars) (Dowsett and Aizhu, 2010). All these indicate that by now China has invested in oil assets not only in African but in Latin American emerging economies, as well in order to maintain its own economic growth. In the spring of 2011 China confirmed that the country would invest in Spain's financial sector, as well and continue to

[2] In this study we concern only with the Eurozone Member States, thus we do not deal with discussions between China and other EU Member States (for example Hungary).

finance the Spanish public debt (China Daily, 2011). By that time, China has already owned about 10 per cent of Spain's foreign debt (Cala, 2011).

Although the financial resources of China were important for these individual European countries, these bond acquisitions themselves were not enough to hinder the deep crisis in the European Monetary Union. This statement can be confirmed by the fact that in the fall of 2011the European Union itself turned towards China for more and other types of support.

3.2. The EU's request from China

In October 2011 the head of the European Financial Stability Facility, Klaus Regling travelled to Beijing to discuss the terms on which the Chinese government would inject money into the Eurozone economies (Groves, 2011). The plan was to leverage the 440 billion euro fund to more than 1 trillion euro by selling bonds and to structure a special purpose investment vehicle linked to the IMF (Jackson, 2011). As Regling had expected, the visit did not end with a concrete agreement but Beijing seems to agree to invest a greater amount of its enormous foreign exchange reserves in the European bailout fund (BBC News, 2011). What are the reasons of the country for investing in Europe? Why is it important for China to help the European countries overcome the crisis? In the following we investigate these issues.

4. Issues relating to the Chinese interference

The Chinese contribution in the European crisis management raises several questions on both sides. It can be assumed that China's approach to the Eurozone may not be altruistic, it has to have some self-interest in its helping hand for Europe. We have already mentioned the tight trade relationship between the two economies, but naturally there are other factors, too which influence the Chinese economic and supporting appearance. We are to present these factors in this section of the paper. Another question is raised from the European point of view: how important and how dangerous is the Chinese help for the EMU? The answer depends on several details out of which it is an important factor whether the Chinese investment in the EFSF (or other funds) will be provided in renminbi or in euro. We are to consider both cases.

4.1. China's interests in supporting the EU

In our approach, China has numerous reasons for decreasing the chance of deepening the Eurozone's sovereign debt crisis further. Beside the economic issues there are notable political motives too. Economic causes can be assorted in three major groups which are related to trade, investment positions as well as currency policy and foreign exchange reserves.

4.1.1 Trade

As we have argued before, trade relations between China and the EU have become very intense. China's number one merchandise export market is the EU. The 27 countries absorb approximately 20 per cent of Chinese commodity export (according to the WTO (2012), this rate was 19.7 per cent in 2010, amounting to nearly 311 billion dollar). In principle, the Eurozone's sovereign debt crisis may lead to decreasing demand for Chinese products, which obviously damages the Asian export-based economy.

Notwithstanding, there are some researchers who do not agree with this statement. For example, Mei (2011) claims that the European demand for China's exports will not decline as long as the EU's big

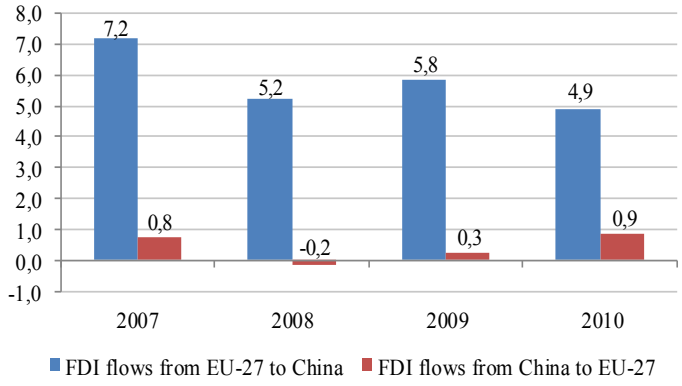
economies (Italy, Germany, France and Britain) do not collapse.[3] Furthermore, he highlights the fact that China has an enormous domestic market which is able to counteract the contraction of its export markets. Nevertheless, China as an export-oriented country having the EU as its large export-partner may suffer from the decreasing European demand, therefore the Asian country has great interest to help the European countries recover. In addition, the depreciation of the euro may aggravate the situation as it decreases the Chinese exporters' income. But alleviate this problem the fact that statistics show that 80 percent of China's foreign trade is settled in dollars, including its exports to the Eurozone (Mei, 2011). This means that the euro's depreciation against US dollar affects Chinese traders less seriously.

4.1.2 Investments

The value of the European direct investments in China is considerable and in recent years the EU's share in China's total FDI has increased (Ali and Guo, 2005; Zhimin and Armstrong, 2010). But the deepening EU crisis can generate a drop in European investments in China in the following years (Figure 5). Qingfen (2011) emphasizes that the EU's cut of investment in China by 378 million dollars in September 2011 is strictly connected to the debt crisis.

Indeed, Mei (2011) notes a "dual influence" of the Eurozone's crisis in this case. He believes that the European investments might decline in China because of the recession, yet other investors may turn towards China escaping from the contraction of their domestic markets. Leastways, total FDI inflow in China decreased from 2008 to 2009 and despite the fact that it increased later, it has not reached the 2008 level in 2010, yet (UNCTAD, 2012). This suggests that the EU still remains a very important FDI-donor for China.

Figure 5: EU's FDI flows from and to China, 2007-2010 (billions of euros)



Source: Eurostat (2012)

On the other hand, China has investments in Europe too. Although the volume of these investments are much smaller than the European FDI in China but they also have reached considerable amount, especially in recent years (Zhimin and Armstrong, 2010). China has trusted in Europe's economic prosperity and Chinese investments in the EU have been increasing continually since the crisis broke out (Figure 5). Hence the EU became the second biggest destination for Chinese outward FDI behind Hong Kong (Zhimin and Armstrong, 2010). China may have large losses if the euro depreciated resulting less worth of the Chinese investments. Therefore it serves as a very important reason why China needs to support the Eurozone and it to keep the value of the euro.

[3] Since the publishing of Mei's referred writing (Mei, 2011) Italy's situation has worsened, too.

4.1.3 Currency policy and reserves

Owing to its fast economic growth, China's share of the world's total GDP is approximately 9 per cent (UNCTAD, 2012), and it owns the largest amount of foreign reserves in the world, but the reserves consist mainly US dollars. With buying euro-denominated assets, China can realize a diversification in its currency reserves thus reducing the risk of keeping large amount of dollars. China's old desire to create a stable international financial system in which the dollar would be less dominant has been only strengthened due to the current economic crisis (Casarini, 2011).

In this context, Mihalakas (2011) draws attention to the so-called "Chinese Dilemma" about diversifying China's holdings of USD. It is true that the Chinese enormous dollar reserves increase the country's dependence on the USA and cause global financial imbalances. But the Chinese renminbi is pegged against the dollar at an undervalued rate in order to maintain the Asian economy's global competitiveness, and if China diminishes its US Treasury bonds' amount, it would lead to a significant strengthening of the renminbi against the dollar. This is obviously contrary to the Chinese interests and this is why Mihalakas (2011, p. 23.) claims that "Europe's leaders shouldn't expect anything more than symbolic Chinese support for the euro."

Godement (2011) mentions the possibility that China could lend Europe in renminbi. In this case the Asian country would transfer the exchange risk to the EU. Furthermore, this kind of agreement could internationalize the renminbi, which is expected to happen – sooner or later. The high reserves and the current crisis have highlighted for China that the internationalizing the renminbi is especially important. According to Gao and Yu (2009), China's potential benefits of internationalization of the renminbi are as follows:

1. The exchange rate risk for the Chinese companies would decrease.
2. The international competitiveness of the Chinese financial institutions would increase.
3. The cross-border transactions would boost.
4. Internationalized renminbi could offset the seigniorage that China has to pay to the US.
5. It could preserve the value of China's foreign exchange reserves.

With this knowledge it would not be surprising if China tried to take further steps in this direction.

4.1.4 Political impacts

Apart from economic issues, there are also political projections of China's potential financial assistance to the Eurozone. China can use its financial assistance to Europe as a bargaining power. It gives a large opportunity for China to achieve certain political objectives like the ac-ceptance of its market economy status or dropping the arms embargo by the EU. China might also force the EU to refrain from criticizing its human rights achievement. (We will concern these issues more detailed in section 4.2.)

Morris (2011) draws attention to a strange historic similarity: in October 1911, after China rose up in a revolution, European financiers lent money to the country. In contrast, in October 2011 Europe turned to China to borrow. According to Morris (2011), "it is one of the biggest turnarounds in history" and it illustrates well that China's global role has significantly changed during the past decades, not only in economic, but also in political sense.

Although Beijing has the potential to assist in the EMU's recovery from the debt crisis and has compelling reasons to do so, but the Chinese intervention may cause really important problems in the domestic society that the Chinese government cannot ignore. It is a sensitive point for Chinese people

that though the Chinese economy grows in an amazing way, the level of living standards in the country stands at a low point, especially in the southern rural areas. Because of this, internal social and political tensions can emerge from helping the Europeans who still live in significantly higher wealth than most of the Chinese (Pierson and Lee, 2011). This is one reason for China not to be ”a lender of last resort” and Wen Jiabao has added that developed countries must be responsible for their fiscal and monetary policies and they have to cut the deficits in their country by their own instead of waiting for China to save them (Badkar, 2011).

4.2. What price should the EU pay for the Chinese assistance?

Having regard to its difficult situation, the EU has little choice in whose assistance it accepts during the process of the euro crisis management. Nevertheless, it is important to see what consequences the Chinese assistance may bring for the EU, because everyone is sure about that China may impose severe conditions in return for its help. There are both political and economic aspects of this question.

4.2.1 Economic consequences

It is evident that China does not want to waste its wealth and for this purpose the country will ask for guarantees on the European investments. Perhaps China will demand preferential trade terms (Groves, 2011), but we have not known these yet. But it is unambiguous that the EU will depend more on China.

We have already mentioned that if China decides to contribute to the EFSF, it can happen in euro or in renminbi. For the EU, both cases might have positive and negative effects.

- If China lend Europe in renminbi, it would transfer the exchange risk to the EU. This can mean a real danger if the internationalization of the Chinese currency starts and the overdue appreciation of renminbi begins. In this case the EU would have to pay back to China a multiple of the borrowed amount, and this can cause a much greater European debt crisis than the current one. Besides, this scenario might lead to a new situation in which neither the role of the euro would grow against the dollar, nor it would decrease compared to both the dollar and the renminbi in the global financial system.
- These kinds of risk would not occur if the EMU borrowed from China in euro. But the increased demand for euro could appreciate the common European currency against the USD and the renminbi, which would worsen the competitiveness of the European region (Botos, 2007).

These trains of thought should be subjects of detailed consideration among the European leaders.

4.2.2 Political effects

There is a very important Chinese request of political character with significant economic implications: Wen Jiabao expects the EU to recognize China’s market economy status as soon as possible in exchange for Beijing’s help (Casarini, 2011).[4] As a result of it, it will be more difficult for the EU to file anti-dumping cases against China in the World Trade Organization, while today the EU imposes strict restrictions on certain Chinese products.

[4] According to the rules of the WTO, all member countries have to recognize China's full market economy status by 2016 (Badkar, 2011).

In his article, Groves (2011) concerns with other possible political expectations of the Chinese regime in return for its contribution to the European bailout fund. He highlights the human rights issues as one of the most important questions. Experts agree that China is likely to ask for a cessation of EU's criticism on human rights abuses (Spiegel Online, 2011).

Another imaginable Chinese demand from the EU is to eliminate its arms embargo on China, which was imposed more than two decades ago, in response to the Tiananmen Crackdown in 1989 (Archick et al., 2005). Although the embargo is mainly symbolic (since China can purchase arms from Israel and Russia), Chinese are motivated in stopping these restrictions because they do not comply with the punishment that Burma or Zimbabwe obtained (Groves, 2011).

These requests discourage some Europeans to accept Beijing's contribution to the EMU's crisis management. Hans-Peter Keitel, president of the Federation of German Industry is one of those who say that the European Union has to be cautious and must not offer China a "political trade-off" in return of financial resources (Spiegel Online, 2011). Moreover, if Europe yields to China in such political issues, it may cause problems between the US and the EU, considering that the States' interests do not meet China's further political headway.

5. Conclusions

The European Union, and especially the Eurozone, faced with a great challenge when it had to handle and manage the financial and economic crisis. In the first period, the countries' financial assistance and economic steps seemed to be enough for every country to survive the crisis. But several states – the former cohesion countries, and especially Greece – experienced serious problems. The Eurozone was – and is – in a crisis. The situation was not easy to overcome as the financial resources and the willingness of large economies to finance the costs were limited. As a solution, the external assistance appeared: both China and the European Union took steps to involve Chinese resources. At first, there were only bilateral attempts between China and some European countries, but later the official representative of the EU asked for negotiating the opportunities. In this study we investigated the motivations lying behind China's willingness: there are economic impacts and political reasons, as well. Trade and investment relations are important for China, while the country can diversify its currency reserves, or internationalize its currency by lending in renminbi, as well. Nevertheless, China risks social counteraction because of the social problems in the country: how dare the country lend money before solving the domestic problems?

Although China would gain on this "business", several open questions remain in connection of its consequences on the European Union. If Europe now choses the easier way out of the debt crisis based on the Chinese capital in spite of domestic restrictions and strict fiscal policies, it risks both its economic and political independence, which may be disadvantageous in long term. Keep in mind, that the European Union imposes antidumping measures to protect the domestic producers, and the largest target of these measures is China. If the "lending deal" comes true, how much space remains for the EU to protect its market against Chinese competition? The question is, therefore, how to manage crisis and who finances the costs: do it alone or do it with somebody else?

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The development of intangible assets through the Cohesion Policy

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Intangible assets in general and intellectual capital in particular are important to both society and organizations. It can be a source of competitive advantage for business and stimulate innovation that leads to wealth generation. Technological revolutions, the rise of the knowledge-based economy and the networked society have all led to the same conclusion that intangibles and how they contribute to value creation have to be appreciated so that the appropriate decisions can be made to protect and enhance them. The Cohesion Policy represents the main EU measure to ensure a balanced and sustainable growth in Europe by promoting harmonious development and reducing the regional disparities. The general objective of the paper is to highlight the important role of the Cohesion Policy in the development of intangible assets. The objectives and the instruments of the Cohesion Policy are designed to support programs on regional development, economic change, enhanced competitiveness and territorial cooperation through the European Union, to develop human resources and employability. The article also attempts to outline the trends of the Cohesion policy for the future by presenting a series of measures suggested by the European Commission through the Europe 2020 Strategy in order to develop intangible assets.

Keywords: intangible assets, intellectual capital, Cohesion policy, development

1. Introduction

Sustainable economic development, no matter the geographical area it is applied to, relates to improving living standards and incorporates a new focus and challenge for the economy: the measurement of intangible and social assets.

Growth in all the European economies must be supported by solidarity between all regions and citizens, and this is possible through the Union Cohesion policy.

The aim to ensure the harmonious development of the economies by reducing the differences existing between regions and the support of the less developed ones, exist since 1957 when Belgium, the Federal republic of Germany, France, Italy, Luxembourg and Netherlands signed the Treaty of Rome, through which they were determined to ensure the economic and social progress of their countries by common actions.

Later, the European Community, in order to promote its overall harmonious enlargement, developed its actions leading to the strengthening of its economic and social cohesion, as also stated in the Treaty of the Functioning of the European Union, article 158. On December 2009 entered into force the Treaty of Lisbon which amended the European Union treaties not replacing them, instead had improved them. The economic and social cohesion referred to in the article 158 of the European Union Treaty mentioned above, was modified with "economic, social and territorial cohesion" (Official Journal of European Union, 2007, p. 85).

The objectives of the Cohesion Policy are focused on convergence, regional competitiveness and employment and territorial cooperation among the European countries. These are the main determinants of the regional economic development.

2. Knowledge-based economy and society. Intangible assets – generators of sustainable competitive advantage and convergence

National economies are in a continuous transformation, influenced by globalization and structural change. The globalization process has been an important changes driver in the context of economic development. "Through its increased mobility of capital, workers, goods and services, globalization is changing the rules by which the economy has been governed during much of the post-war era" (Pike et al., 2006).

Our society is constantly changing at an increasing speed. We talk more and more about the New Economy or about Knowledge Economy which is characterized by a number of factors different from those that characterized the traditional economy.

Some of these features may be referred to as computerization, changing technologies, increasing uncertainty, sustainability, globalization and application of new knowledge. The quality and uniqueness of the knowledge component has become the most important source that someone may have in order to gain a competitive advantage.

The New Economy is developing a global network society where information and communication technologies (ICT) are reshaping communication both within and between organizations. Growing interest on intangible assets is closely related to the development of knowledge society and the undeniable importance of new knowledge-based workers (Porter, 1998). In this context, many authors discuss the importance of a firm to survive, highlighting the importance of human and social capital performance within the organization. Concepts such as intangible assets, intellectual capital, knowledge creation, basic skills and innovation, are now a centre stage in explaining economic assets that create continuous value to an organization, in exchange for financial and physical resources and gains (Ulrich, 1998).

In a broader perspective, the term knowledge society refers to any society where knowledge is the primary production resource instead of capital or labor. A knowledge society creates, shares and uses knowledge for the prosperity and welfare of the people who belong to it. Also, lately, the emerging concept of the "new economy" was revealed as a new approach of the economic science. A segment of economists consider that modern economies are dynamic and adaptive systems rather than closed systems struggling.

In Peter Drucker's (1993) vision, the future relies on other key success factors: "the traditional factors of production - land, labour and capital - have not disappeared. But they have become secondary".

Knowledge, unlike labour, land and capital is an asset that becomes more valuable on the extent of its use. The more used, the knowledge becomes more effective and efficient. Knowledge is key component of the system of modern economic and social development.

The new economy involves giving a greater interest to the so-called knowledge society, the employees (who are the holders of knowledge), intellectual capital, intangible assets and learning organizations. A failure to value intangible assets into companies' management and control systems in a systemized way makes sustainable management impossible and endangers the achievement of any company's economic, social, and ecological goals in today's knowledge-based economy.

Without the intangible assets perspective (especially for management and accountability), companies may take the risk of destroying their own core substance for the purpose of optimizing short term

financial results. By involuntary destroying essential intangible assets, they put their value creation and potential for the future at risk.

People are key aspects for the evolution of value and co-creation of products and services that add value. Their distinctive capabilities are the basis of the competitive advantage. According to the new resource-based perspective of a company, competitive advantage is achieved by continuous developing existing resources and creating new resources and capabilities in response to constantly changing market conditions. Among these resources and capabilities in the new economy, knowledge is the most important value creation asset.

3. The instrument of the Cohesion Policy and allocations for Member States 2007-2013

The Convergence objective, representing al least 81.54 % of total funds across the European Union, is the priority of the Funds. In order to complete their convergence process the regions under the Convergence objective receives significant financial aid until 2013.

The resources for the Convergence objective are distributed between the regions as follows: 70.51% for the regions corresponding to level 2 of the common classification of territorial units for statistics (NUTS level 2 regions) made by the Council Regulation no. 1059 in 26 May 2003 whose GDP per head is less than 75% of the average GDP of the 25 Member States before 1 January 2007 (excluding Bulgaria and Romania); 4.99% for the regions which lost the eligibility for this objective because their GDP per head will exceed 75%% of the average GDP of the 25 Member States before 1 January 2007; 23.22% for the Member States whose GNI per head is less than 90% of the average GNI of the 25 Member States before 1 January 2007 1.29% for the Member States whose GNI per head will exceed 90% of the average GNI per head of the 25 Member States before 1 January 2007.

The Regional Competitiveness and Employment objective represent 15.95% of total funds. The resources for this objective are distributed between the regions of the European Community not covered by the Convergence objective (78.86%) and the NUTS 2 level regions covered by the Convergence objective (21.14%). The later mentioned regions are those who were under Convergence objective in the period 2000 – 2006 and no longer meet the eligibility criteria of the mentioned objective because their GDP per head exceeded 75% of the average GDP of the 15 Member States (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom). These regions will also receive financial aid in the transitional phase (Table 2).

The European Territorial Cooperation objective covers regions which have land or sea frontiers, in order to support actions promoting the territorial development, the interregional cooperation and the exchange of experience. These funds are representing 2.52% of total funds and are divided as follows: 73.86% for the financing of the regions corresponding to level 3 of the common classification of territorial units for statistics (NUTS 3 level regions) along their internal and certain external borders and those NUTS 3 regions which have maritime borders separated by a maximum of 150 km for the purpose of cross-border cooperation; 20.95% for the financing of transnational areas and 5.19 % for financing of interregional cooperation, cooperation networks and exchange of experience along the entire territory of the European Community (Table 2).

At present, the Cohesion policy represents more than one third of the European Union overall budget, about 35% of spending, more than 80% of subsidies for the less-developed regions of the Member States. Half of these funds are invested in the Member States that joined European Union in 2004.

The objectives of the Cohesion Policy are supported by three funds: the European Regional Development Fund (abbreviated as ERDF), the Cohesion Fund (abbreviated as COH) and the European Social Fund (abbreviated as ESF), divided between them (Table 1). The ERDF and ESF are also referred to as Structural Funds.

The general rules governing those funds are settled by the Council Regulation of the European Commission no. 1083 of 11 July 2006, which not amends the provisions of other regulations, as Council Regulation no. 1081 in 2006 or Council Regulation no.1084 from the same year.

Table 1: The instruments of the Cohesion Policy, 2007-2013

Objectives	Structural Funds and instruments
Convergence	ERDF ESF COHFunds
Regional Competitiveness and Employment	ERDF ESF
European Territorial Cooperation	ERDF

Source: Introduction to the Structural Funds: 6, table available also at http://ec.europa.eu/regional_policy/index_en.htm

The European Regional Development Fund is one of the financial instruments of European Union Cohesion Policy, created in 1975 for supporting programs on regional development, economic change, enhanced competitiveness and territorial cooperation through the European Union.

The Cohesion Funds are focused on transport, environment, trans-European networks, energy efficiency and renewable energy, applying to Member States with a gross national income of less than 90% of the European Union average.

The European Social Fund was created in 1957 and is the main European Union source of financial support to develop human resources and employability. This fund increases the adaptability of workers and enterprises by strengthening access to employment and participation in the labor market, by combating discrimination and facilitating access to labor market for disadvantaged people, by improving education ant training and helping develop the institutional capacity and efficiency of public administrations.

The annual allocations for each Member States under these funds are restricted to fixed limits considering its capacity for absorption. According to the Treaty of the Functioning of the European Union (2010) the budget of the European Union are based, annual, on the multi annual financial framework agreed between the European Parliament, Council and Commission in an interinstitutional agreement. This financial framework sets the maximum amount of commitment appropriations in the EU budget each year for broad policy regions and fixes an overall annual limit on payment and commitment appropriations.

The interinstitutional agreement which established the allocations for 2007-2013 for Cohesion for Growth and Employment was signed on 17 May 2006 by the European Parliament, the Council and the Commission and entered into force on 1.1.2007. The agreement also stipulates that “In its technical adjustment for the year 2011, if it is established that any Member State's cumulated GDP for the years 2007-2009 has diverged by more than +/- 5 % from the cumulated GDP estimated when drawing up

this Agreement, the Commission will adjust the amounts allocated from funds supporting cohesion to the Member State concerned for that period. The total net effect, whether positive or negative, of those adjustments may not exceed EUR 3 billion. If the net effect is positive, total additional resources shall be limited to the level of under-spending against the ceilings for sub-heading 1B for the years 2007-2010. The required adjustments will be spread in equal proportions over the years 2011-2013 and the corresponding ceilings will be modified accordingly" (Official Journal of European Union, 2006, p. 3).

The allocations for the Convergence objective are based of calculations on relative regional prosperity, national prosperity and unemployment rate. For Regional competitiveness and employment objective the allocations are calculated on the basis of total population, number of unemployed people in NUTS Level 3 regions with an unemployment rate above the group average, number of jobs needed to reach an employment rate of 70%, number of employed people with a low educational level and the low population density. The allocations for the Territorial Cooperation regions are determined on the basis of the population of the NUTS level 3 regions in terrestrial and maritime border areas, as a share of the total population of all the eligible regions (for the cross-border regions) and on the basis of the total population of each Member State, as wight of the total population of all the Member States concerned (for the transnational regions).

The Convergence objective of the Cohesion Policy between 2007 and 2013 aims to accelerate the convergence of the less developed Member States and regions by improving condition for growth and employment through the improvement and the increasing of the quality of investment in human capital, the development of innovation, the adaptability to economic and social changes, the protection and improvement of the environment and administrative efficiency.

The Regional competitiveness and employment objective of the Cohesion Policy between 2007 and 2013 must support the competitiveness of the regions by increasing and improvement of the quality of investment in human capital, innovation, entrepreneurship, the protection of the environment, the improvement of accessibility of workers and business and the development of jobs markets.

The European Territorial Cooperation objective of the Cohesion Policy between 2007 and 2013 aims to support cross-border cooperation through joint and regional actions in order to increase the overall competitiveness of the regional economy and to improve the quality of living standards for the areas populations, to support transnational cooperation through actions leading to regional development as well as interregional cooperation and exchange of experience. Between 2007 and 2009 the cumulated GDP has diverged by more than +/- 5% from the cumulated GDP estimated at the time the Interinstitutional Agreement was being drawn up, therefore the European Commission had to adjust the amounts allocated from cohesion funds for each Member State in the situation mentioned above. This measure referred to Bulgaria, Estonia, Latvia, Lithuania, Czech Republic, Hungary, Poland and Romania and for three of these countries the amounts allocated were increased (Poland, Slovakia and Czech Republic), according to the COM(2010) 160 final.

Table 2: The allocations 2007-2013 adjusted (million Euros current prices)

	2007	2008	2009	2010	2011	2012	2013	Total
Cohesion for Growth and Employment	45.061	47.267	48.427	49.388	50.987	52.761	54.524	348.415

Source: European Commission (2012)

For the period 2007 – 2013 an amount about € 348.4 billion (Table 2 and 3) is being invested in order to achieve the harmonious development of the European Union and its regions through a higher

competitiveness especially in less developed regions, expanding employment and improving people's well-being and protecting and enhancing the environment.

Table 3: Distribution of Cohesion Funds on groups of Member States, 2007-2013

Member States	2007	2008	2009	2010	2011	2012	2013
High developed MS	19,011.10	18,748.70	18,093.40	17,641.10	17,402.10	17,543.40	17,673.90
Moderately developed MS	9,950.70	10,599.50	10,459.40	10,584.30	10,784.00	10,988.10	11,193.50
Less developed MS	15,939.40	17,751.60	19,698.40	20,982.40	22,601.60	24,020.40	25,438.00
Technical Assistance	113.40	117.50	121.20	122.90	126.90	131.00	134.80
Interregional	46.40	49.50	54.90	62.70	70.90	77.00	83.30

Source: author's calculations based on European Commission (2012)

4. Cohesion Policy's main objectives to support development of intangible assets

4.1. Promoting employment and social cohesion

Global economic, social and environmental changes will have profound effects on the labour market and social situation in the Union. Cohesion policy has a key role to play in increasing employment, finding new ways to tackle rising unemployment, promoting self-employment, acquisition of new skills, social inclusion and the economic and social integration of migrants and vulnerable populations. Empowering people to effectively engage in transformation processes will be essential.

4.2. The equity (social inclusion) objective

It is uncontested that achieving an equitable distribution of well-being is one of the objectives of governments. There is also increasing agreement that development is about both efficiency and equity, and that public action, at whatever stage of development of an economy, should address social problems.

In Europe, pressure has mounted for greater attention to be given to social issues at EU level. A concern is that high and rising inequality, and increasing fear of globalization, could jeopardize economic integration (market-compensating motivation). Another is that national welfare systems are increasingly constrained by EU budgetary rules (political-economy motivation). A third is that the EU's existence is based on the expectation that citizens should enjoy equal rights (federal motivation). The failure to reduce inequality in several European countries, and its rise in others, are signs of the extent of the problem.

The question relevant for this Report is not "whether" but rather "how" governments should pursue equity objectives. In particular, the issue is whether there is a rationale for inequality to be tackled by a place-based development policy rather than by financial transfers to people independently of where they live. Before addressing this question, it is first necessary to clarify the concept of inequality and to define the policy objective.

4.3. Multidimensionality and social inclusion

There is widespread agreement that no single dimension can capture a person's well-being and the degree of inequality. A life worth living, including the opportunity both to achieve what an individual considers relevant and to widen her or his set of options, embraces labour skills, health, education, housing, security, income, working conditions, self-respect, a role in decision-making and so on. Income is a relevant component of these dimensions but it does not reflect them all, as empirical data confirm.

Income is one factor in achieving well-being, though it cannot achieve many aspects of well-being and, accordingly, cannot be seen as an end in itself. Amartya Sen's capability approach makes clear that the capacity of any individual to convert a given amount of any "commodity", including money, into achievements that are relevant for their life depends on a combination of (social and physical) circumstances and on access to other "commodities" often produced by policy. Indeed, several dimensions of well-being strongly depend on public institutions performing essential tasks and provide public goods and services. These different dimensions are also interdependent in terms of their effect on well being.

This multidimensional perspective is gaining increasing acceptance, as documented by the findings of the OECD mind-opening "Global project to measure the progress of societies". It has long been adopted by the European Union in promoting, through the Social Protection and Social Inclusion Process, the commitment and cooperation of Member States to reducing inequality. This political and methodological debate has utilized the concept of "social inclusion", which includes access for all citizens to basic resources, social services, the labour market and the rights needed "to participate fully in economic, social and cultural life and to enjoy a standard of living and well-being that is considered normal in the society in which they live". Together with the multidimensional approach, this concept also embodies both a threshold and an interpersonal notion of inequality and focuses strongly on the process through which greater equality is pursued.

Building on this perspective, the academic debate and various international policy Reports, it is possible to develop an operational definition of social inclusion. This can be defined as the extent to which, with reference to multidimensional outcomes, all individuals (and groups) can enjoy essential standards and the disparities between individuals (and groups) are socially acceptable, the process through which these results are achieved being participatory and fair.

This definition captures both a threshold and an interpersonal concept of inequality: a threshold concept, where the achievement of society consists of guaranteeing everyone some essential standards, which depend on (evolving) social preferences and attitudes94; an interpersonal concept, where the achievement of society consists of ensuring that disparities between individuals (or groups) are socially acceptable. The two concepts are complementary but distinct.

When disparities are reduced, the proportion of people falling under the threshold could increase and, conversely; when the essential standard is achieved by a growing proportion of people, disparities could increase.

The reference to "a participatory and fair process" captures the idea that both the dimensions and the thresholds used in defining social inclusion must be established through a democratic process, in which everyone is given a chance to form an expectation and to voice it, information is exchanged, public scrutiny and criticism take place; and a consensus emerges on which dimensions are relevant and what is "essential". This is the condition for making local choices more informed and in line with

people's preferences and for allowing citizens and collective local actors the freedom to experiment with solutions while exercising mutual monitoring.

Multidimensional outcomes should identify people's substantive opportunity to live according to their values and choices and to overcome their circumstances. The reference to circumstances underlines that social inclusion policies should focus so far as possible on those factors that are outside the control of the individual. These include both personal characteristics inherited or acquired through life (gender, physical traits, social background, etc) as well as contextual factors, including the functioning of public institutions, which can affect everyone, or particular groups, sharing certain features (religion, culture, outlook, etc).

On this basis, a "place-based policy aimed at social inclusion" can be defined as: a territorial strategy for improving social inclusion, in its various dimensions, through the provision of public goods and services, by guaranteeing socially agreed essential standards to all and by improving the well-being of the least advantaged.

What is the economic rationale for such a strategy? Why is an exogenous intervention in a place needed in order to promote social inclusion? Why, if an exogenous intervention occurs, should it be centered on public goods and services? And why should the adoption and implementation of the policy be left to the local area?

5. Conclusion

The EU sustainable development strategy promotes the creation of a prosperous, innovative, rigorous, competitive and eco-efficient economy, which supplies high life standards and fully qualitative employment opportunities throughout the EU, thus also emphasizing the economic and intangible aspects as important for a sustainable development.

In consequence, sustainable competitive advantage is a central point, if not to say the core of both the national and corporate strategy. It allows maintenance and improvement of the company's competitive position in the market and enables the business to survive competitors for a long period of time. Quantitative and qualitative fundamental change in competition requires organizational changes to an unprecedented level. Current sustainable competitive advantage must be built on the organizational capabilities and must be constantly reinvented.

Acknowledgement

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Challenges for Romania's employment policy in the Real Economy

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According to the statistics released by the Romanian National Institute of Statistics, our country registered during the last years an increase of the unemployment rate. In this paper we try to establish if and how the world economic crises influenced this increase.

After a short review of the established theories and models in the field, our paper analyzes the evolution of the Romanian unemployment rate during the last years, in order to identify a number of factors which determined its evolution as well as in order to point out the importance of these factors.

The paper continues with a study of the employment policy promoted by the Romanian government and ends with a forecast of the unemployment rate for the immediate following period.

Keywords: unemployment, policy, forecast.

1. Introduction

The economic development of a country or a region is correlated with many factors: natural and information resources, human resources. From ancient times, the man stood at the basis of the society development. Thus, by selling the most important resources that he owns (labour - physical or intellectual), the man, and tacitly the labour that he performs, represents the main economic development factor. However, within a market economy, there is no complete occupation, not all persons manage to get employed (either due to qualification or just because there aren't enough work places). Economic development is tightly connected with occupation, and the unemployment indicates an unbalance in the economy determined by the miscorrelation of the job offer (the said work performed by people) with job demand (work places existent on the market).

This essay has as purpose the aiming of certain macroeconomic problems, meaning employment in Romania. In the first chapter we intend to briefly treat the theoretical basic information regarding unemployment, and for this we shall offer several definitions in order to better explain this macroeconomic phenomenon. In the second chapter we shall deal with the unemployment dimensions and their measuring and with the analysis of the employment policy promoted by Romanian government following the financial crisis. In the third chapter we shall present the concept of natural rate of unemployment and the factors that determine it. In the last chapter, the most important one for this essay, we shall present an evolution of unemployment in Romania focusing mainly on the period 2000 – 2011.

2. The concept of unemployment

Before making a synthesis of the definitions that exist for unemployment in the literature, we must point out that, in the beginning, the concept of unemployment was synonymous with the concept of "inactivity". The word "unemployment" in Romanian language comes from the French word

"chomage". The latter, derives from the Latin word "caumare", coming from the Greek word "cauma", which means "great heat", due to which any activity ceased.

Unemployment is a negative state of the available active population which cannot find employment due to degradation of the relationship between economy development, as job demand sources, and the population evolution, as source of job offer, it represents a contemporary quality of the labour market which consists in the fact that job offer is almost always (or actually always) higher than the job demand (Popescu et al., 2007).

Unemployment is analysed from different angles, drawing up opinions which constitute the object of wider disputes, from which several types of definition result:

- in certain university manuals and handbooks, unemployment is analysed as cumulative value of all those persons that have the statute of unemployed. In this case, the problem passes towards the unemployed person. The most frequent used definition that the economists give to the unemployed person is: the person that searches for a paid job, and who does not have such a job currently (Dobrotă, 1997).
- the definition given by the *International Labour Office within the United Nations*, organisation which studies this phenomenon for elaborating fighting strategies, considers an unemployed person any person that has over 15 years old and who meets simultaneously the following conditions: is fit for work, does not work, is available for a salary or non-salary work, looks for a job. As regards the age, there are several opinions, thus in Romania, Law No. 1 of 1991 and Law No. 86 of 1992 establish the age limit to 16 years old (Roatiş, 2000).

According to the EUROSTAT definition, which follow the criteria of the International Labour Office (ILO) in the area, the unemployed is the person aged between 15 and 74 years old who meets simultaneously the following 3 conditions: does not have a job; is available to start work in the following 2 weeks; has been actively looking for a job anytime during the past 4 weeks (National Bank of Romania, 2010a).

3. Unemployment dimensions and its measuring. Romania's employment policy.

a) Unemployment level, dimension or proportion constitutes a statistical indicator which reflects the number of unemployed persons compared to the total number of persons that are fit and want to work.
   Unemployment level, dimension or proportion is measured either in absolute expression or in relative expression.
   - In absolute expression – by the effective number of unemployed persons;
     They are expressed in "persons" ("thousands of persons") and are determined for certain reference periods: monthly, quarterly or annually. The number of unemployed persons is calculated also in relation with certain demographic variables, such as: age, gender, marital status, but also considering the professional qualification, the level of studies and territorial allocation.
   - In relative expression – by unemployment rate (Roatiş, 2000).
     Unemployment rate is calculated as percentage ratio between:
     - the number of registered unemployed persons and the number of active population:

$$Unemployment\ rate = \frac{Number\ of\ unemployed}{Active\ population} \cdot 100 \quad (1)$$

or

- the number of unemployed persons and the number of employed population:

$$Unemployment\ rate = \frac{Number\ of\ unemployed}{Employed\ population} \cdot 100 \quad (2)$$

Depending on the purpose of the unemployment analysis, at a certain period of time or during a certain period, either the active population or the employed population can be used as denominator.

Measuring unemployment must also take into account that the work force problem is both of economic and social type, thus the evaluation has a subjectiveness note, from which a certain phenomenon subvaluation or overvaluation approximation results. Sometimes, the social-political decision factors assert a trend or another (Popescu et al., 2007).

Unemployment subvaluation requires only the registration of the persons that receive unemployment benefit, excluding other categories such as: Persons that are temporarily out of work, young persons that finish an education cycle and do not find employment, persons under disguised unemployment, meaning they are under-occupied, that is, for example, for an activity which can be performed by four persons, five persons are employed instead, etc.

Unemployment overvaluation requires the registration as unemployed persons and of other rightless categories, such as: persons that, although they cash in unemployment benefit, however they intend to get employed, such as for example persons that take care of children, persons that have a job, but they claim that are unemployed, because they work illegally; persons that have several jobs at the same time, establishing the overvaluation of jobs by calculating unoccupied jobs due to lack of qualified persons, persons that do not want to work due to personal reasons, etc.

b) Measuring unemployment in Romania Employed population, work force, unemployment are calculated, in our country, either based on the work force balance or based on investigations on the work force.

According to the "Investigation on work force in households", the *employed population* includes all persons over 15 years old and above that have deployed an economic or social activity that generates goods or services of at least one hour in the reference period (which has a week), with the purpose of achieving incomes in the form of salaries, payment in kind or other benefits.

Are considered unemployed persons the following: (Dobrotă, 1997)

- employees, meaning persons that perform the activity based on a labour agreement in an economic or social unit or for private persons in exchange of remuneration in the form of salary, paid in cash or in kind, in the form of commission;
- employers, persons that carry out the activity in their unit for which they have as employees one or several persons;
- independent workers, persons that deploy the activity either in their own unit or with the help of their own machine, either based on their professional qualification, but who do not have employees, and who could be helped or not by family member, unpaid;
- unpaid family workers, persons that deploy the activity in a family economic unit conducted by a family or a relative member, for which they are not paid in the form of salary or payment in kind;

- members of an agriculture company or of a cooperative, persons that have worked either as farm field owners in a company founded according to the law, either as member of a small scale cooperative or credit company.

Measuring unemployment implies taking into consideration unemployment intensity (Creţoiu, 2007):

- total unemployment – by total loss of the job and complete termination of the activity;
- partial unemployment - reducing the duration of the work week;
- disguised unemployment – many persons deploy an apparent activity, with a reduced work productivity WL.

c) Employment duration can be defined as the period passed since the loss of employment, or since the reduction of the work week (in case of partial unemployment), until the moment of the normal reprise of activity or until they are employed. Duration of unemployment influence the unemployment rate, because the shorter the average unemployment duration is, the higher will be unemployment input and output flows (Băcescu and Băcescu-Cărbunaru, 1998).
There is a series of factors on which the duration of unemployment depends, such as (Băcescu and Băcescu, 1993b):
   - demographic structure of work force;
   - number and type of available jobs;
   - wish and ability of unemployed persons to continue searching for a better job;
   - organization of labour market meaning that there are some employment agencies and special offices for employing young persons, etc.

d) Measuring the unemployment implies also the structure evaluation. The unemployment structures must be calculated and registered systematically by fields of activity, training levels, specialization and crafts, by age, gender, etc. (Roatiş, 2000).
Unemployment frequency shows how often, on average, workers become unemployed during a certain period of time (Băcescu and Băcescu, 1993b).

e) Romania's employment policy
Unemployment prevention and reduction have become major concerns of all social forces (employees, trade unions, employers' associations). Taking into consideration the inveterate existence of a high-level unemployment, ample *measures* have been drafted and promoted in order to ensure certain decent existence conditions for unemployed persons. By their content, *anti-unemployment measures* have direct and indirect effects upon the economy. The policies used against unemployment are (Popescu et al., 2007):
   - *Passive policies* emphasize the protection of unemployed persons, especially through the unemployment benefit (aid) and the certainty of certain active persons to withdraw from the labour market. The most important passive policy measures are: Reduction of work duration, reduction of retirement age, increase of the mandatory schooling period; increase the number of jobs with reduced and atypical daily schedule; discouragement of the feminine employees activities; restricting or forbidden immigrations, etc.
   - *Active policies* imply a set of measures, methods, procedures and tools with which the increase of employment level is aimed at.

     A better distribution of the total work fund could be a first group of measures, which can be obtained through: reduction of the work week duration; decrease of retirement age; increase of the schooling duration of young persons; increase of the time dedicated to the qualification; extension of jobs with reduced program and/or part-time jobs (Dobrotă, 1997).

The second group of measures refers to *the removal from the labour market of certain groups of bidders*, such as: discouragement of feminine employees work, deportation or return of foreign immigrants workers un-naturalized yet, interdiction of immigration or its restriction to the maximum extent, etc (Roatiş, 2000).

Creation of new jobs based on investments must be made especially in those fields and sector with chances for future development. Even though, the most motivated to invest are the companies with high profits, the agencies with availability towards the increase of number of employees must be supported as well.

Programmes deployed towards training and qualifying unemployed persons refer to the just highlight of chances for reemployment considered by dismissed persons. They imply granting, by the state or private sector, of funds for the deployment of specialization courses, organized in order to increase the professional qualification and training in areas for which there are chances to find employment (Ciobanu, 2006).

Another group of measures aim *the increase of active population mobility*. Such a process can be encouraged by: improving the education curricula content, ensuring its adequate structure, professional orientation of young persons towards the most dynamic areas of social-economic activities; adoption of complex measures which would ease people mobility towards new jobs in the area that is to be developed with high priority (Dobrotă, 1997).

Anti-unemployment policies can also be completed with the following policies: a) *Income policies* – are applied when there are governmental control forms over salaries, such as: A maximum allowed percentage for the increase of salary rate; establishing a national average salary, etc. b) *Levy and taxation policies* – are income policies on the indirect mechanisms. Macroeconomic stabilization policies include the three types: anti-cyclic, anti-inflationary and anti-unemployment policies. Combining them in efficient political mixture requires a careful examination of the effects they have on the economy by using stabilization patterns. Specific to this type of political mixtures is the fact that their components can exercise the effects on different periods of time.

In 2009, the Romanian Government adopted 28 anti-crisis measures among which maintaining the unemployment rate within acceptable limits, keeping the flat tax at 16% and VAT at 19% and the allocation of approximately 20% of the investment budget.

Hoping to reduce the unemployment rate and to alleviate the effects of the economic crisis, the Romanian Government adopted the Emergency Ordinance no. 13/2010 which provides that employers who hire the unemployed in 2010 will be exempted for six months from social security contributions related to them. Employers benefit from this feature only if the unemployed people are registered with employment agencies for at least 3 months prior to the hiring decision and had no relationships with those employers in the last 6 months prior to employment.

This measure was part of the package of anti-crisis measures adopted at the beginning of 2010 together with the provision of facilities for young people under 35 years who set up companies, replacing the minimum tax with a flat rate, reducing the number of tax return declarations to be completed by persons legal, compensation of reimbursed VAT with recovered VAT, the initiation of public-private partnership law, and the postponement in 2010 of income tax payment. The measures continued also with reducing the wages of public employees by 25%, the pension fund by 15% and with increasing VAT by 4 percentage points. All this was accompanied by massive layoffs in the public sector so that from 2009 until present days 200,000 public servants remained jobless.

Unfortunately, many of these measures had a negative impact on unemployment. Thus, the flat tax led to the closure of many microenterprises, cutting wages and pensions reduced product demand, and therefore the enterprises' activity, generating job losses.
We can say therefore that the actions of the Romanian Government in the context of the economic crisis were not sufficient in reducing or even maintaining the unemployment rate.

4. The natural rate of unemployment

The normal operation of the work market takes place when there is a natural unemployment whose rate corresponds to the entire use of the workforce (Băcescu and Băcescu, 1993a). The natural rate of unemployment is a rate that ensures the macroeconomic balance. The unemployment may be considered excessive, in any country, if it exceeds its natural level (Băcescu and Băcescu-Cărbunaru, 1998).

Some economists define the natural rate of unemployment as the rate for which the vacant working places are equal with the number of unemployed persons. According to other authors the natural rate of unemployment is the rate at which the wages as well as the inflation are either constant, or at acceptable levels. Another definition states that the natural rate of unemployment is the level of unemployment to which any growth of the aggregate demand doesn't influence the unemployment reduction. According to this definition, the natural rate of unemployment is the rate to which all unemployed people are volunteers, meaning there is only a cyclical unemployment and, possibly, a seasonal one. James Tobin states that the natural rate is the rate of unemployment where its level is unchanged and the existing fluctuations within the mass of unemployed people, as well as the period of unemployment are normal (Ţigănescu and Roman, 2001).

The natural rate of unemployment is influenced by certain specific factors. One of the factors that determine the natural rate of unemployment is the *structure and migration of the population of that particular country* (in any country the unemployment rate is calculated as a weighted mean of the natural rates of unemployment in the diferent demographic groups). Another factor is the *existence of the national wage*, wage that has as purpose the assurance of a decent level of emolument for all the working people and which is regulated by each country's legislation.

Third, the natural unemployment may be influenced by the *level of the growth rates in the different areas of activity*. The *unemployment benefit* may be considered as a fourth factor that influences the natural rate of unemployment; this is due to the fact that not all unemployed people have the right to the unemployment benefit, as well as to the fact that the unemployment benefit cannot be granted forever. Fifth, the *power of unions*, which is different from one country to another, may influence the natural rate of unemployment through their power of negotiation with the time fluctuations. The taxes are another element influencing the work market (Băcescu and Băcescu-Cărbunaru, 1998).

The economists have two different modalities of estimating the natural rate of unemployment. The first method stands in determining en equation through which they correlate the aggregate unemployment to the inflation rate; and the second method of estimating the natural rate of unemployment is based on the history related to the unemployment rate for long periods of time. This data is different according to the demographic groups (Ţigănescu and Roman, 2001).

The natural rate of unemployment is analyzed also from the point of view of the connection between the unemployment and the inflation: When the inflation rate is stable, constant, we speak of the natural

rate of unemployment, also called NAIRU-" Non Accelerating Inflation Rate of Unemployment" (Băcescu and Băcescu-Cărbunaru, 1998).

5. The evolution of the unemployment rate in Romania. Models and forecasts

The evolution of the unemployment rate is registered in a constant reduction trend, visible since 2000, due to the following causes:

- the continuous economic growth;
- the consistency in the efficient implementation of the measures provided by Law no. 76/2002 regarding the unemployment insurance system and the stimulation of workforce occupation, which have constantly created great occupation opportunities on the work market;
- the continuous construction activities, including the winter period, through the works developed by the Mistry of Transportation and Housing on building houses, sports arenas, the infrastructure.

Moreover the rate of unemployment during the analyzed period registers, starting with 2008, higher and higher values, growth that is due to the layoffs that have been the choice of many commercial societies following the international economic crisis.

For the analysis of the evolution of the unemployment rate in Romania during 2000-2010, we used the data present in the B.N.R. Monthly Bulletins:

Table 1: The evolution of the unemployment rate in Romania during 2000-2010

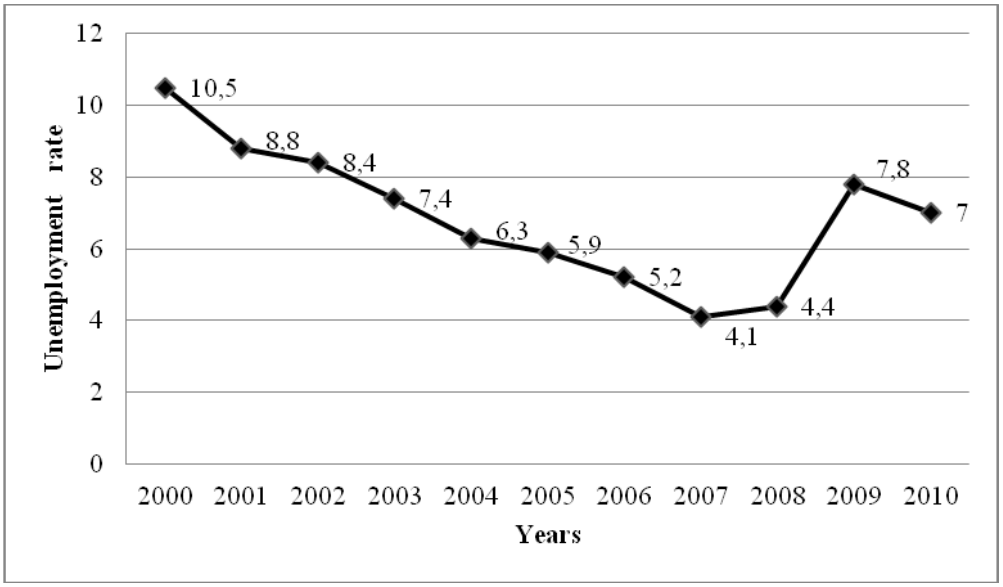
Year	Total number of registered unemployed people (thousand people)	Registered unemployment rate (%)	Total number of BIM unemployed people (thousand people)	BIM unemployment rate (%)
2000	1007,1	10,5	775	6,9
2001	826,9	8,8	711	6,4
2002	760,6	8,4	845	8,4
2003	658,9	7,4	692	7
2004	557,9	6,3	799	8
2005	523,0	5,9	704	7,2
2006	460,5	5,2	728	7,3
2007	367,8	4,1	641	6,4
2008	403,4	4,4	575	5,8
2009	709,4	7,8	699	6,8
2010	626,9	7,0	725	7,3%

Source: National Bank of Romania (2005, p. 15; 2007, p. 18; 2010b, p. 14) and data from National Institute of Statistics, Tempo-online (2010).

During 2000-2007, the unemployment registered in Romania reached a maximum level of 1007,1 (thousand people) in 2000, followed by a descendent evolution, reaching a minimum level of 367,8 (thousand people) in 2007. The unemployment rate has registered a continuous decrease starting with 2000 until 2007, the following year, 2008, registering a higher value with 0,2 percentual points, and in 2009 this rate increases in a faster way than the previous year, the increase being of 3,4 percentual points.

Regarding the BIM unemployment, this one starts decreasing only in 2002, with respect to the registered unemployment, which decreases starting with 2000. Analyzing the evolution of unemployment, while we acknowledge the fact that on national level the situation in 2009 is similar to the one in 2001 and 2002. The rate of the registered unemployment represents the report between the the number of unemployed people (registered to the workforce occupation agencies) and the civil active population (unemployed people and civil occupied population, defined according to the methods of the workforce balance). The statistical data do not reflect entirely the real situation in the work market.

Figure 1: The evolution of the unemployment rate in Romania during 2000-2011 - Total



Source: Based on the data in Table 1

The evolution of the unemployment rate shows that in Romania, strating with 2000 this index has followed a decreasing trend, registering smaller and smaller values during the analyzed period , from 10,5% in 2000 to 4,0% in 2007, and next year in 2008 this unemployment rate will grow, reaching in 2009 an equal percentage with 7,8.

The unemployment rate registered between 2000-2010 has experienced the following evolution by sex and origin environments:

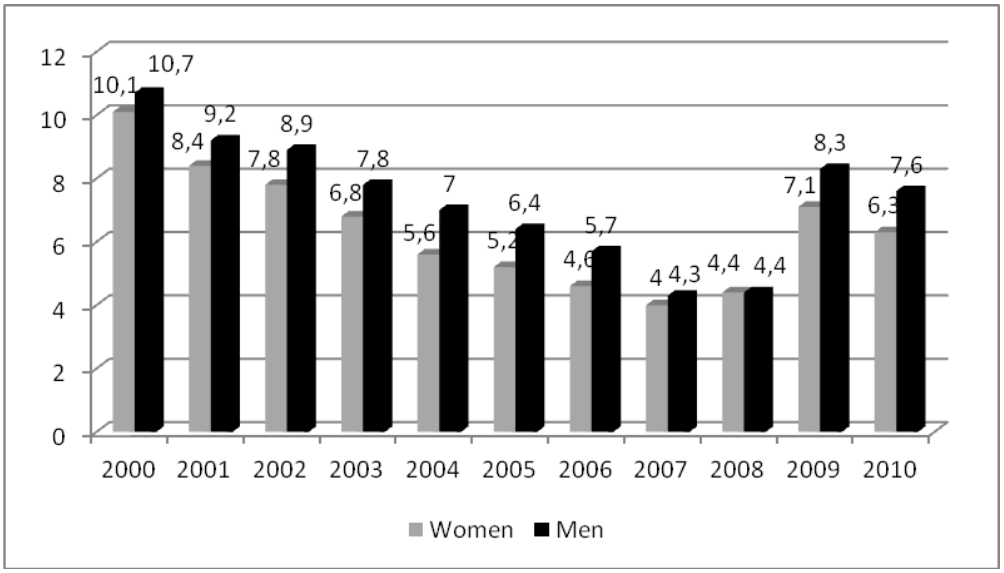
Table 2: Evolution of the unemployment rate in Romania during 2000-2010 by sex and origin environments

Year	Unemployment rate (%)				
	Total	*Women*	*Men*	*Urban*	*Rural*
2000	10,5	10,1	10,7	11,1	3,1
2001	8,8	8,4	9,2	10,4	2,8
2002	8,4	7,8	8,9	11,2	5,4
2003	7,4	6,8	7,8	9,5	4,3
2004	6,3	5,6	7	9,5	6,2
2005	5,9	5,2	6,4	8,8	5,2
2006	5,2	4,6	5,7	8,6	5,6
2007	4,1	4,0	4,3	7,7	4,9
2008	4,4	4,4	4,4	6,8	4,6
2009	7,8	7,1	8,3	8,2	5,2
2010	7,0	6,3	7,6	9,1	5,0

Source: National Bank of Romania (2005, p. 15; 2007, p. 18; 2010b, p. 14) and data from National Institute of Statistics, Tempo-online (2010).

Regarding the unemployment rate by sex, the spread between the two rates has reached, during the analyzed period a mean of 0,9 percentual points, and on origin environments 4,4 percentual points.

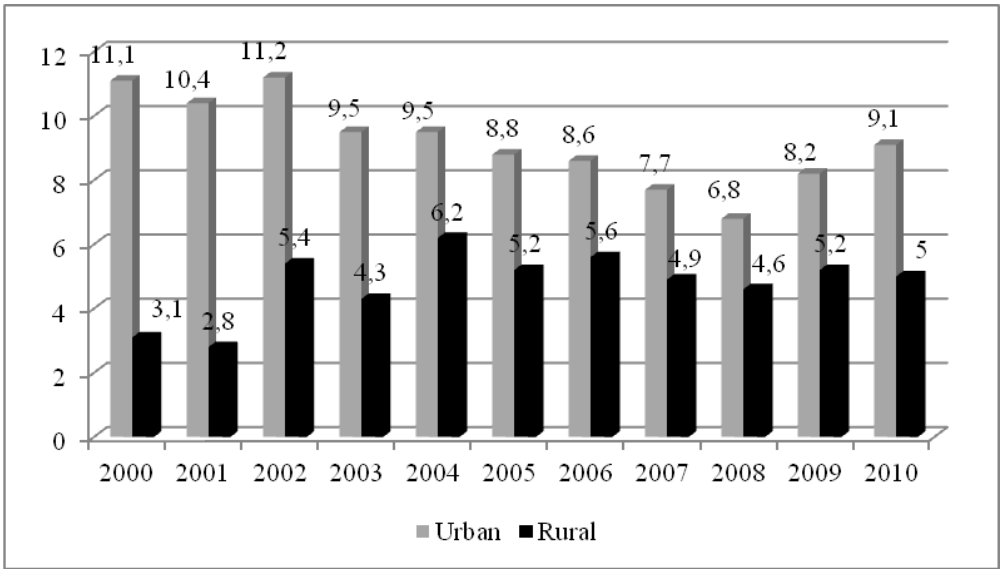
Figure 2: Evolution of the unemployment rate in Romania during 2000-2010 – by sex



Source: Based on the data in Table 2

For the female population, unemployment rate was decreasing between 2000-2007, when it decreased by 6.1 percentage points from a rate of 10.1% in 2000 to one of 4.0% in 2007, and starting with 2008, this rate was higher by 0.4 percent over the previous year. The same declining trend is met for the male population, as male unemployment rate in 2000-2007 decreased from 10.7% in 2000 to 4.3% in 2007, and for the female population, this indicator's value starts to increase in 2008 up to almost doubling in 2009 compared to the lowest level (from 4.3% to 8.3%) met in 2007. Statistical data show a smaller number of unemployed women than unemployed men, but less fluctuation over the years, 10.1% to 10.7% in 2000, namely 7.1% to 8.3% in 2009.

Figure 3: Evolution of the unemployment rate in Romania between 2000 and 2009 – presented according to different backgrounds



Source: Based on the data in Table 2

Depending on the residence location, in the period 2000-2009, the most significant changes in unemployment rates were registered in urban areas. Unemployment declined from 11.2% in 2002 to 6.8% in 2008, for urban, while rural unemployment had a fluctuating evolution from 5.4% in 2002 to 5.2 % in 2009, excepting 2000 and 2001, where the unemployment rate recorded the lowest level in the period under review.

6. Econometric models and forecasts

Boianovsky and Presley (2009) start from exploring the connection between the natural rates of unemployment and interest, which was firs studied by Dennis Robertson in the 1930s. They deduce a relation between the monetary base, the interest rate, the real wages and the unemployment rate, starting by the differences between the Robertson and Keynes theories regarding the unemployment, who look at the interest rate, which has an impact on savings, consuming, and finally on the unemployment rate.

Cook and Korn (1991) in their empirical research provided evidence that market interest rates responded more strongly to the unexpected component of the employment report in the latter half of the 1980s and the early 1990s than they the finding of the money announcement literature generally did in earlier years. They use a regression analysis to identify the strong reaction of interest rates to the employment report in that period. *Kooros* (2006) identifies in his research those macroeconomic variables that have a significant effect on the unemployment rate and he estimates a multiple regression model for unemployment rate, using GDP, the dicount rate, the budget deficit, the inflation rate, and the nominal wages.

Croitoru (2010) begins from a neo-keynesian model in order to identify the implications that inflation and the real income have on unemployment. The first model implies a negative relation between the real income and the unemployment rate, showing the this relation is temporarily interrupted at two moments: when the companies give up the norms and pass from the Nash negotiation to an alternative mechanism of establishing the income, and the second model introduces nominal rigidities as rigid

prices and derives a negative relation between inflation and the unemployment rate, showing that the unemployment rate answer to a stance modification of the monetary policies is relatively high. Also, *Fitzenbergern and Garloff* (2008) who analyze the problems of the labor market in Germany, come to the conclusion that the major reason of the high unemployment rate is the low wage dispersion.

In order to investigate the relation between the unemployment rate (RSSA), interest rate (RDSA), net wage (CSMSA) and import (ISA) in Romania, we used monthly desezonalized data for 2000:01 – 2011:10 collected from the Monthly Bulletins of the Romanian National Bank (National Bank of Romania, 2000-2011) and the INSSE Tempo-online series available online on Romanian Statistical Institutes website (National Institute of Statistics, Tempo-online, 2010).

We shall employ the multiple regression in order to identify the relation between the variables mentioned above. The dependency between the economical variables can take different forms. For identifying the most plausible function we represented the scattered with the purpose of analyzing the connection between the endogen variable, that was desezonlized and each of the explicative variables piece by piece that were desezonalized as well. Based on these graphic representations we observed that between each exogen and endogen variable there is a possible liniar connection. Therefore, after having tested several multiple linear regression models displaced in time, the best for studying the unemployment rate has the following form:

$$RSSA_t = C(1) + C(2) * RDSA_t + C(3) * CSMSA_t + C(4) * ISA_t + C(5) * RSSA_{t-1} + \epsilon_t \quad (3)$$

Testing the regression models validity. Following the testing of colinearity with the help of the matrix correlation we can conclude that the presence of colinearity at the level of this model of regression is missing. We shall further analyse the estimation of the general linear regression moderl's parameters.

Estimating the parameters of the multiple model of regression. In the case of the multifactorial model the parameters can be estimated through several methods. In order to determine the models parameters we shall use the Ordinary Least Squares method. In order to estimate the validity of the hypothèses on which the classic model is based various statistic tests shall be used.

Table 3: Multiple linear regression models displaced in time

Dependent Variable: RSSA (Unemployment rate seasonally) Method: Least Squares Sample(adjusted): 2000:02 2011:10 Included observations: 140 after adjusting endpoints RSSA=C(1)+C(2)*RDSA+C(3)*CSMSA+C(4)*ISA+C(5)*RSSA(-1)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.497190	0.276839	1.795953	0.0747
Interest rate	0.012148	0.006855	1.772077	0.0786
Net wage	0.000585	0.000168	3.482429	0.0007
Import	-0.000233	7.35E-05	-3.171131	0.0019
Unemployment rate(-1)	0.911546	0.025918	35.17038	0.0000
R-squared	0.977217	Mean dependent var		6.939216
Adjusted R-squared	0.976546	S.D. dependent var		2.205617
S.E. of regression	0.337780	Akaike info criterion		0.701975
Sum squared resid	15.51699	Schwarz criterion		0.806541
Log likelihood	-44.48924	Durbin-Watson stat		1.223776

Source: Authors' calculations

The results connected to the five parameters of the models indicate that the model is valid because the values of the Student statistics (t-statistic) calculated for the five parameters are bigger in absolute value than the tabel value equal to 1.64 for a significance threshold (prag) of 10% (Andrei Tudorel et al., 2008). Therefore we can conclude that the null hypothesis H0 is rejected for all the parameters of the regression equation, these being significantly different from zero, the exogen variables are significant for the total population. Also, the probabilities of these coefficients are smaller than the significance threshold equal to 0,1.

In order to measure the intensity of the endogen variables dependency on the regression factors the determination coefficient must be established. Based on the obtained results, at the specimen (esantion) level between the endogen variable – the desezonalised unemployment rate and the exogen desezonalised variables there is a high intensity connection. A definition of R2, which depends on the number of observations T=140 (because we applied the mobile averages method for the sezonalisation of the series, 2 data were lost) and the number of exogen variables p=4 is

$$\overline{R^2} = 1 - \frac{t-1}{t-p}(1 - R^2) = 0.97 \quad (4)$$

this having adjusted the definition of the correlation rapport. We can affirm, therefore, that between the variables there is a connection of medium intensity. In order to study the size of $\overline{R^2}$ in the total population, the Fisher test is used.

In oder to study the size of $\overline{R^2}$ in the total population, the Fisher test is used. Because $F_{calc} = 1417 > F_{tab} = 4$ it results that the null hypothesis is rejected, therefore the influence of the exogen variables on the endogen variables is significant, which indicates a strong intensity of the connection between the unemployment rate and the variables that influence it.

Following the testing of the hypothesis regarding the models aleatory variable it resulted that the independence hypothesis of the errors is not verified. Therefore, in order to eliminate the autocorrelation of the errors we applied the Cochrane-Orcutt procedure (Andrei and Bourbonnais, 2008).

The new model based on the identification of the a relation between the unemployment rate and the exogen variables mentioned above has the following content:

$$RSSA_t - (0.4 * RSSA_{t-1} = C(1) * (RDSA_t - 0.4 * RDSA_{t-1}) +\cdot + C(2) * (CSMSA_t - 0.4 * CSMSA_{t-1}) + C(3) * (ISA_t - 0.4 * ISA_{t-1}) + C(4) * (RSSA_{t-1} - 0.4 * RSSA_{t-2}) + u_t \quad (5)$$

We verify the qualities of the new model by repeating the same stages as for the previous model. The parameters of the linear model of regression with values displaced in time were estimated through the method of the smallest squares.

Table 4: Cochrane-Orcutt model

Dependent Variable: RSSA-(0.4*RSSA(-1))
Method: Least Squares
Sample(adjusted): 2000:03 2011:10
Included observations: 140 after adjusting endpoints
RSSA-(0.4*RSSA(-1))=C(1)*(RDSA-0.4*RDSA(-1))+C(2)*(ISA-0.4*ISA(-1))+C(3)*(RSSA(-1)-0.4*RSSA(-2))+C(4)*(CSMSA-0.4*CSMSA(-1))

	Coefficient	Std. Error	t-Statistic	Prob.
Interest rate	0.033163	0.008652	3.833180	0.0002
Import	-0.000123	7.28E-05	-1.683964	0.0045
Unemployment rate(-1)	0.880453	0.029104	30.25231	0.0000
Net wage	0.000673	0.000225	2.993482	0.0033
R-squared	0.946382	Mean dependent var		4.127400
Adjusted R-squared	0.945199	S.D. dependent var		1.318371
S.E. of regression	0.308625	Akaike info criterion		0.514778
Sum squared resid	12.95394	Schwarz criterion		0.598824
Log likelihood	-32.03443	Durbin-Watson stat		1.816051

Source: Authors' calculations

The results regarding the five parameters of the new model show that values of the Students statistics calculated for the five parameters are bigger in absolute value that the tabel value equal to 1.64 for a significance threshold (prag) of 10% (Andrei et al., 2008). Therefore we can conclude that the null hypothesis H0 for all the parameters of the regression equation, these being significantly different from zero, the exogen variables are significant also at the total population level.

The positive and negative signs of the independent variables are those expected: the interest rate, net wage and the unemployment rate of t-1 period increase the value of the unemployment rate, while the import decrease the unemployment rate.

In order to measure the intensity of the endogen variables dependency on the regression factors is determined by the determination coefficient. At the sample (esantion) level between the endogen variable and the exogen variables there is a connection of very strong intensity, because the coefficient is equal to 0.94. In order to determine if this intensity is kept also at the total population level, we shall use the Fisher test. Because $F_{calc} = 1233 > F_{tab} = 4$ it results that the null hypothesis according to which between the variables there would not exist any connection, is rejected, therefore the exogen variables influence over the endogen variable is significant.

Testing the fundamental hypothesis regarding the aleatory variable u_t

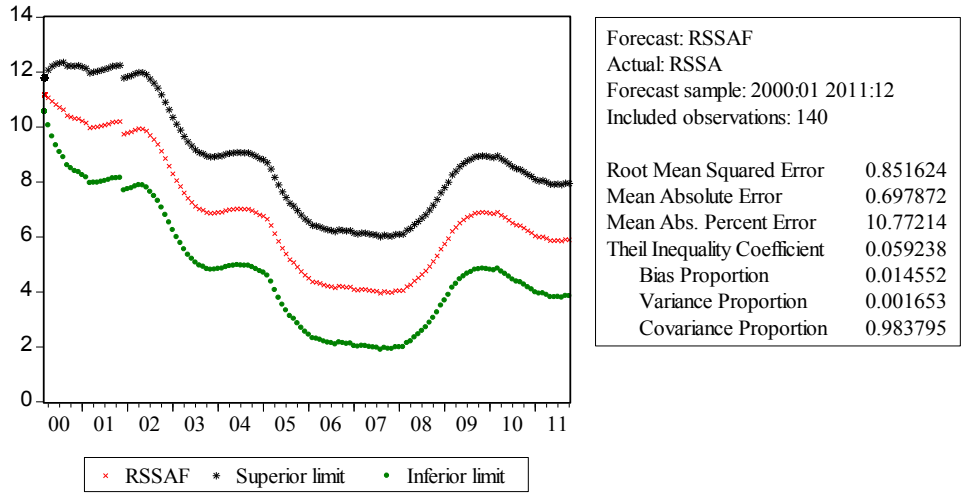
The independence hypothesis of the u_t residual variable's values. In order to detect the residual variables autocorelation we shall use the Durbin-Watson test. This time we shall start from the relation: $u_t = \rho u_{t-1} + \omega_t$. The following hypotheses are emitted -H_0: $= 0$, with the alternativeH_1: $\rho \neq 0$. In this case, the Durbin-Watson statistic is equal to 1.816051, therefore $d_2 = 1{,}76 < DW_{calc} = 1{,}816051 < 4 - d_2 = 2{,}24$, therefore we can conclude that the errors are independent, the errors independence hypothesis is verified.

The homoscedasticity hypothesis of the u_t. residual variable. In order to verify the homoscedasticity hypothesis we employed the White test. Because the probability associated to the Fishes test equal to zero is smaller than the significance threshold (prag), 0,05, the H_0 hypothesis is accepted as being true, meaning that the model is homoscedastic.

Testing the normality of the ut aleatory variable's distribution. Due to the importance of the normal distribution in modeling of the various statistics, different special tests of concordance have been developed to analyze the normality of the various distribution. One such method of verifying the hypothesis of error normality of various distribution is the Jarque-Berra test, which is asymptotical, valid in the case of a large volume sample, which follows a chi-square distribution with 2 degrees of freedom. Because $JB_{calc} = 3.80 < \chi^2_{tab(a;5)} = 5.99$ it results that the error normality hypothesis cannot be rejected at the total population level, the errors being distributed normally. Because all three hypotheses referring to the aleatory variable have been verified, it results that the model is valid; therefore it can be used to emit predictions.

Therefore, starting from the multiple linear regression model with time displacement onto which the Cochrane-Orcutt procedure was applied the unemployment rate values were predicted for November and December 2011 time period. The predicted values of the unemployment rate, obtained based on the above mentioned model, are of 5,8% in November 2011 and 6,2% in December 2011.

Figure 4. Unemployment rate forecast 2000:01-2011:12



Source: Authors' calculations

Based on the econometric model estimated above, it was observed that the unemployment rate in Romania is influenced by the evolution in time as well as a number of other macroeconomic factors, namely, net wage, import and interest rates. The predicted values whith the multiple linear Regression model with time displacement onto the Cochrane-Orcutt procedure for the next period shows that the unemployment rate will increase by 14% in November 2011 compared to October 2011 and 22% in December 2011 compared to October 2011. To determine the reliability of this forecast, it must be validated or invalidated by real values.

7. Conclusion

Regarding unemployment during these years of transition, size, dynamics, forms and characteristics of unemployment in our country have evolved differently from year to year and from month to month.

Although unemployment affects all categories of labor, it focuses mainly on workers. Unemployment has affected workers primarily because of declining industrial sector where there were numerous layoffs due to restructuring.

The increasing share of unemployed with secondary and higher education is caused by high school graduates and those with higher education, which first entered the labor market and did not find a job corresponding to their training. For our country, there is a tendency for professional categories with lower levels of education to be more vulnerable to unemployment. Those with higher education, as we have seen, are the least affected, the risk that they work in areas other than those for which they specialize is lower.

Among the main causes of youth unemployment, perhaps the most important is the lack of correlation of education and qualification system of education products, with market demands. Transition from school to labor market integration of youth is one of the most critical and pressing problems of the labor market, with particularly strong impact on economic and social levels.

The data analysis presented in the last chapter leads us to the conclusion that unemployment is specific trend within this period of economic recession. Based on the econometric model, we observed that the unemployment rate in Romania is influenced by the evolution in time as well as a number of other macroeconomic factors, namely, net wage, import and interest rates. The predicted values for the next period shows that the unemployment rate will increase by 14% in November 2011 compared to October 2011 and 22% in December 2011 compared to October 2011.

An important role in filling those registered with the agency and in harmonizing actions at the micro and macroeconomic level is represented by the measures and initiatives of the local operators and local administrative bodies. Also, in order to ensure a balance between supply and demand on the labor market, the media coverage of the measures public employment service is implementing will be intensified.

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Winners or losers?
State measures in crisis management and the energy markets

Sarolta Somosi

Several studies have been made about the present global financial crisis that has affected real economy as well. We know the root causes and its consequences. However we found a sector that has not been examined comprehensively in inland studies on the ground of changing environment. It is worth examining the effects on energy sector on the basis of their stages and impacts. Among governmental responses we can find several that hit energy markets, like super-taxes, privatisation or the broadening of state ownership. National supports were introduced for the handling of the financial crisis within the energy sector. However we must add that energy market supports served rather development purposes and not company salvage like we have seen it in other sectors. Also competition rules remained almost as consistent as we experienced it before. Moreover, if recent EU level energy policy projects come true, energy sector can even realize profit from the crisis. Future of the European energy markets depends on the recognition and exploitation of the possibilities coming from new circumstances.

Keywords: energy markets, economic crisis, state measures

1. Introduction

Present economic crisis has different effects on each sector owing to their original condition and their nature. Thanks to its characteristics energy is a special segment of all economies and so it is worth reviewing whether crisis has any special outcome or does the sector have any role in crisis management that is worth mentioning.

Several studies have analyzed the effects of the crisis on some parts of energy markets, but no comprehensive study can be found about the interaction between state crisis management measures and energy markets, more precisely power and gas markets. Because of the high level of interlocking on European energy markets, we examine the situation from an EU perspective and line up examples from several member states that explain, support or rather contradict mainstream processes.

First of all *we show the effects of the crisis on energy prices*, demand and investments. Then we analyze the relationship between state crisis management and energetics, examine not only the supports and allowances but also discovering *a kind of donor rule of energetics in recent state actions*. Finally we illuminate those possibilities which have appeared thanks to the new circumstances. In our opinion this is important because the EU- and state-level responses given to the crisis will determine the future path of community energy policy.

Our research is an assimilation – beside relevant EU and OECD documents – of domestic and international studies, but in order to be up-to-date information from the daily press had been applied as well.

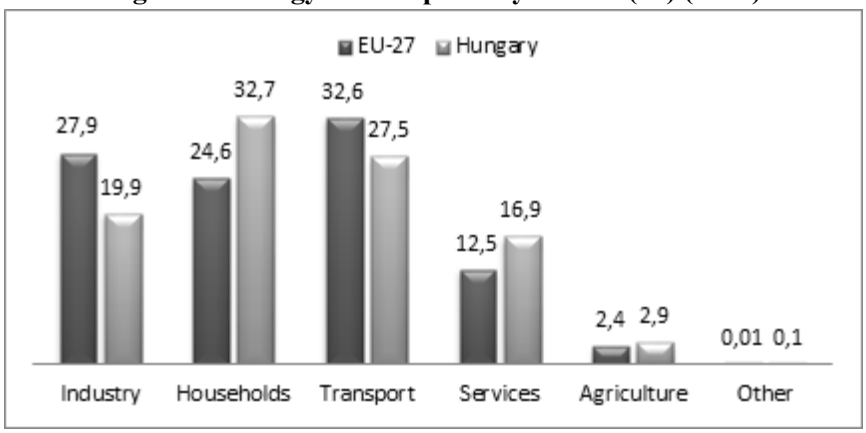
2. The effects of crisis on energy markets

Recent years of European energetic history contained many exciting turns and episodes. The huge oil-price increase of 2008 and the Russian-Ukrainian gas dispute of the subsequent winter were events with probably unprecedented effects on general European energetics. However according to the Commission the global financial and economic crisis proved to be the biggest challenge that has long-term effects on Member States' energy markets (European Commission, 2009).

2.1. Energy consumption and determination of energy prices

Energy consumption stabilized by the end of 2007 has fallen in the next two years due to the crisis. Changes in energy demand are affected by several factors, among them by the energy-using sub-sectors. On Figure 1 below it is shown how these sectors – using energy as input for their activities – shared energy consumption in the European Union and in Hungary before the crisis.

Figure 1: Energy consumption by sectors (%) (2007)



Source: Own edition based on European Commission (2010a)

Households, transport and industry are the three biggest groups of consumers. Among energy-intensive sectors the processing (car manufacturing and machinery) and building industries suffered from the biggest losses owing to recent years' events. The decrease of energy consumption is less imputable to households and the transport sector. Compared to other products' and services' energy needs, demand seems to be less flexible thanks to the importance and high proportion of the later mentioned sectors. Accordingly energetics are said to be 'crisis-proof': energy consumption has fallen less compared to the processing industry (Figure 2).

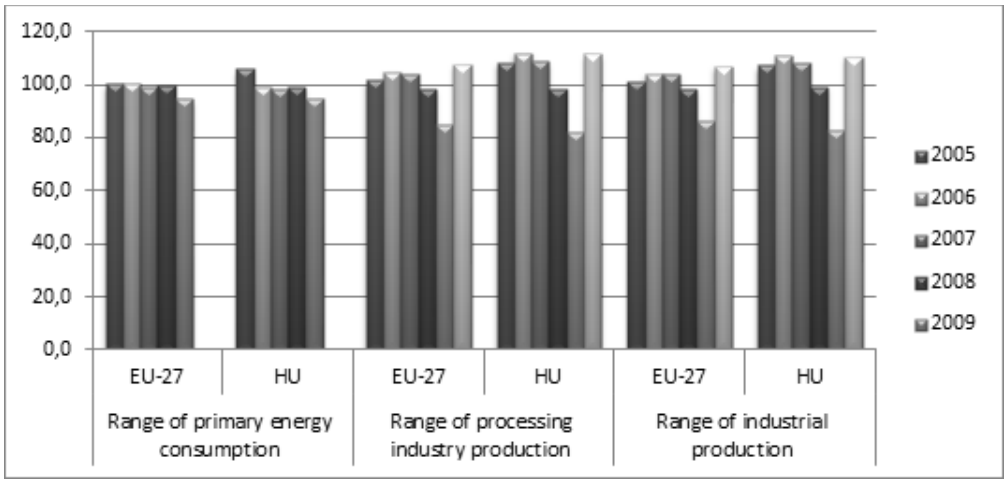
We must add that despite the crisis recent years' energy consumption exceeded the level of the early 1990s. In EU Member States it has touched bottom level in 1994 with its 1053.152 million tones (which is 94 percent of the amount of 2009). In the meantime in Hungary the worst year from this perspective was 1997 with its 15.952 million tones which is 97 percent of the 2009 data).[1]

By the decrease of demand oversupply had an effect on energy prices as well. By the summer of 2008 the oil price (per barrel) reached an extraordinary level of 140 USD, but with the economic turmoil it fall to 43 USD in the first half of 2009 and stabilized around 70 USD in the summer of 2009. This brought a decrease in wholesale gas and electricity prices as well. Figure 3 shows the above mentioned

[1] From this point of view the recent economic crisis could be considered to outweigh previous recessions. If we count the growing tendency of energy consumption the higher amount of 2009 can only be attributed to the increasing energy intensity of the last two decades in each sector.

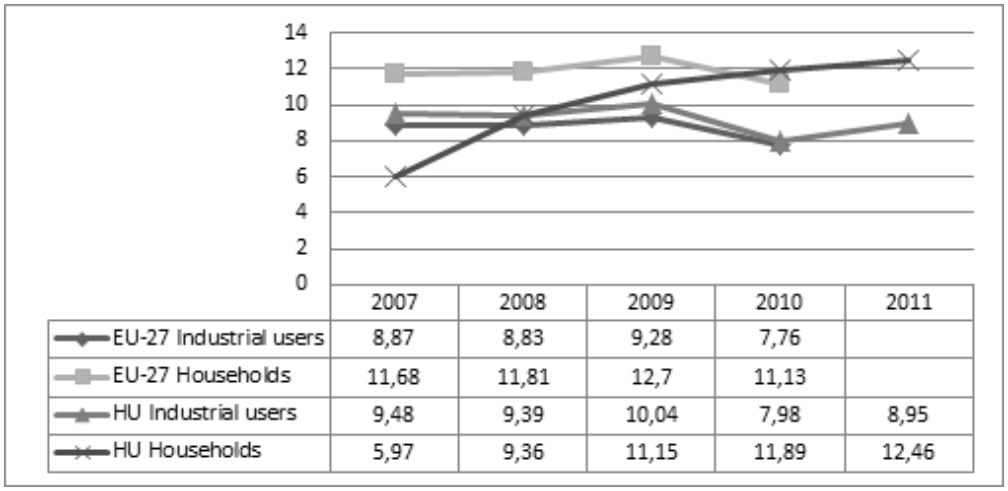
peak in 2009 and decrease in 2010. The reason of delayed representation is the oil price based gas price determination.

Figure 2: The set of different economic data of the EU and Hungary between 2005 and 2009 (previous year=100%)



Source: Own edition based on the data of Hungarian Central Statistical Office

Figure 3: Fluctuation of natural gas prices for industrial and household consumers in the EU and Hungary (EUR/GJ)

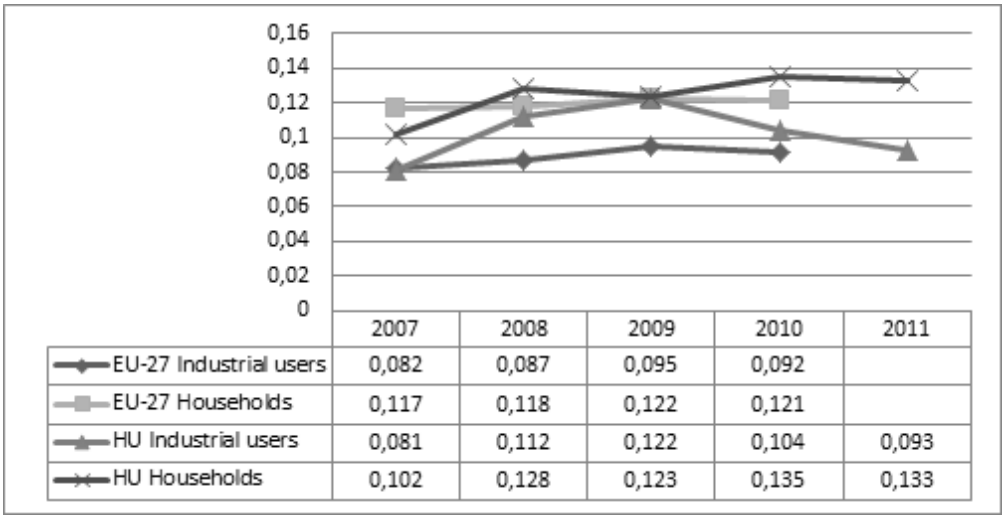


	2007	2008	2009	2010	2011
EU-27 Industrial users	8,87	8,83	9,28	7,76	
EU-27 Households	11,68	11,81	12,7	11,13	
HU Industrial users	9,48	9,39	10,04	7,98	8,95
HU Households	5,97	9,36	11,15	11,89	12,46

Source: Own edition based on the data of Eurostat

The change is not so prominent but nevertheless appears on electricity market as well. According to the data of Eurostat price maximum could be measured by European and Hungarian industry users and EU-27 households in the first half of 2009. Hungarian households experienced the price increase a little bit later (Figure 4).

Figure 4: Fluctuation of electricity prices for industrial and household consumers in the EU and Hungary (EUR/kWh)



	2007	2008	2009	2010	2011
EU-27 Industrial users	0,082	0,087	0,095	0,092	
EU-27 Households	0,117	0,118	0,122	0,121	
HU Industrial users	0,081	0,112	0,122	0,104	0,093
HU Households	0,102	0,128	0,123	0,135	0,133

Source: Own edition based on the data of Eurostat

2.2. The effect of the crisis on energetic investments

In long term the most unfavourable turn of economic turmoil is the line of delayed or cancelled investments. From this point the most important question is that for how long will the crisis be drawn out. The longer the energy demand decreasing and price depressing crisis runs, the more uncertain will the return of investments be. The London based World Economic Council has made a research already in autumn 2008 with the participation of 65 energetic companies from 16 European countries. At that time investment willingness appeared to be optimistic, since companies thought that 20 percentages of investments could be fulfilled in time, 40 percentages would be postponed for 2 years and only 20 percentages of them would be delayed for uncertain deadline.

According to the 2009 report of OECD strong and financially stabile companies have maintained their plans but others announced to supervise their investment strategies within and outside the EU as well. Energy market players have reduced such spending with about one fifth (around 100 billion US dollars) (OECD-IEA, 2009). Development of renewable energy resources has fallen a lot more, with about 38 percentages. Similarly to OECD countries, the efforts of re-structuring the European Union's energy markets halted, nevertheless clean energy investments exceeded other areas' investments both in 2008 and in 2009 (New Energy Finance, 2009).

The paralyzed credit market, higher capital costs and risk avoiding, altogether *the difficulties of receiving credit are the reason for lower investment willingness*. Falling demand and prices, the uncertain starting point of recovery make energy investments less attractive among service providers as well (Houssin, 2009). The development of new technologies have been set back because none of the states were forced to pay attention to the improvement of energy efficiency. This will cause serious problems by the end of the turmoil, when energy demand will rise again and the investments – that should have provided the replacement of running out resources – had been cancelled or at least reduced (Connor, 2009).

Analyses of the consequences of the economic crisis confirms that energetics are among the crisis-proof sectors notwithstanding that consumption and prices have fallen. Natural gas and electricity demand is relatively inflexible irrespective of the fact that the circumstances have changed. Indirectly, through the recession of financial and processing sectors and services economic crisis affects

energetics. This appears mostly in slight reduction of demand, in the cut of credit financing energy investments and in the permanent subsistence of economic uncertainty.

3. The relationship of state crisis management and energy markets

Economies are hit severely by real economic crisis in three areas. The amount of credits and market possibilities has decreased and numerous employment possibilities ceased. Hence we introduce those crisis managing measures that are somehow in connection with energy markets.

3.1. State crisis management by the help of energy sectors

Measures shall be sorted by the period of their effects in order to differentiate the emergency steps from those having permanent result. Most energetic companies – because of their management and ownership structure – are suitable to provide short term income for governments in the way of paying super-taxes or by the clearance sale of company assets.

According to its effects, the introduction and transaction period of super-tax assessment on well prospering sectors, like banking, telecommunication, energetics and retail trade is the fastest measure/tool. It is neither unknown in inland practice.

> *In connection with the 2006 economic stabilization Hungarian government has assessed extra burden on banks and pharmaceutical companies among others. The purpose of the so called Robin Hood-tax applied to energetic companies with profit over 8 percentages was to decrease the fee of distance heating. In 2010 the government has extended both the group of stricken sectors and the rate of the tax. New burden was introduced in the energetics and the income was generally provided for the correction of the budgetary deficit (Voszka, 2011).*

Similar efforts have been made in Slovakia, where the Fico administration called upon foreign owned companies to decrease energy prices. Their aim was to support public expenditures of social groups with low income level from their profit – like in the case of Robin Hood-tax (Szilvássy, 2006).

Super-taxes and other profit decreasing regulations can have a pressing down effect on relevant company assets. That is why these tools are unfavorable in case of energy company privatization, the other emergency problem-solving method. In turn some European countries chose this way of budget balancing. Greece, being maybe in the worst position, has also announced to put together a privatization package of 50 billion euro.

> *According to the CEO of the company the biggest challenge will be the sale of 17 percentages of PPC, the energy company with already 51 percentages of state majority. Although Greek crisis decreases stock rates it is not sure that serious interest will appear. Its appeal/seduction diminishes since the administration is willing to keep management rights, and energy demand is decreasing because liberalization process in the European perspective is lagging behind (Galambos P., 2011b).*

The Greek example is not standing alone. Poland has also announced to privatize 16 percentages of Enea energy company in order to lessen the country's debt. Swedish prime minister has mentioned the electricity interested Vattenfall group among those who may realize profit from the appearance of a new minority owner (Adósságkezelő privatizáció, 2010). The possibility of getting income this way is a narrow path, since the majority of EU member states do not dispose over significant ownership in natural gas and electricity sectors. Among the exceptions we can find Ireland, Poland, Greece,

Slovakia, France, Denmark and Austria in 2008. Sweden and the Czech Republic had significant state majority only in the electricity sector (Wölfl et al., 2009; Haney and Pollitt, 2010).

In turn a converse tool could be applied for handling budgetary or debt problems where energy privatization took place earlier. This is the *set back of a significant level of state ownership in stabile, long term dividend income providing companies*. This measure belongs to those that have permanent results in longer term.

> *We can find examples for these measures again in Slovakia, which appeared to be the most active in this field. Seven years after its sale, it has bought back the 49 percentages of Transpetrol for triple costs in 2009.[2] The administration has announced further deals alluding strategic companies (Ficoék…, 2009). The water power plant of Gabčikovo, which is now hired by Slovenské Elektrárne (The Slovakian Electricity Company) from the Italian Enel group is among these possible transactions. This re-secularization is helped by the adoption of an act in 2009 about strategic companies. According to the act, the state can practise ownership rights over companies that are in serious economic turmoil because of the crisis until it may find proper buyer, who declares to run it in long term (Mentőövbe…, 2009).*

The extension of state ownership is an important aim of the Hungarian administration that has entered into office in 2010. This appears in the energy sector, although super-taxes, demand decrease and other regulation did not have a stock rate decreasing effect.

> *The biggest case was the purchase of 21 percentages block of shares of MOL Hungarian Oil Company with a regional leading role in 2011. The remains of the IMF credit covered the transaction. Moreover the administration has subordinated the tasks of South Stream gas transmission pipeline under the supervision of the state-owned power producer, Magyar Villamos Művek Zrt. (MVM) and the re-purchase of the whole gas-business from E.On also became an issue (Az MVM-é…, 2011). The expected dividend income may have an important share in the decision to prefer the wholly state-owned MVM compared to MOL, which is only partially under parliamentary control.*

We can see similar processes also outside the European Union. The Croatian government has made several efforts towards the recuperation of majority shares of INA oil company. These facts are insistent because the other actor of the deal is the previously mentioned Hungarian energetic company.

> *Two dominant shareholders of INA are the MOL with its 47.2 and the Croatian government with its 44.8 percentage of shares (Mindenkinek…, 2011). After the 2008 privatization they have made an agreement about the help in crisis management in favour of management rights received by the MOL (Galambos M., 2011). Croatian administration deployed several capital market and regulative measures to obtain the majority or to cut the management rights in the hands of MOL (Diszkriminatívnak…, 2011). Until now these efforts failed but recently penal procedures have been initiated which may be motivated by internal affairs in connection with the recent Croatian elections (Galambos P., 2011a).*

The financial effect of extending state ownership is quite uncertain. Recent volatility of stock rates, the non-aligned governmental actions can easily bring the devaluation of block of shares, as we can already see it in the case of MOL. In this case the return of the investment from dividend income can shift for longer period.

[2] The company runs the Slovakian part of Friendship oil transport pipeline, through which the MOL owned Slovnaft refinery receives oil.

3.2. Handling the crisis of energy sectors

Temporary allowances of competition regulation – the control of mergers and acquisitions, antitrust measures and actions against cartels – belong to crisis management tools. Beside extended state aid possibilities, more flexible evaluation of fusions, dominant position and the permission of crisis-cartels can help to avoid the deepening of recession. The European Union has made such efforts, but finally the legal background remained and only the procedures became more flexible. In case of energetics we focus to the evaluation of fusions.

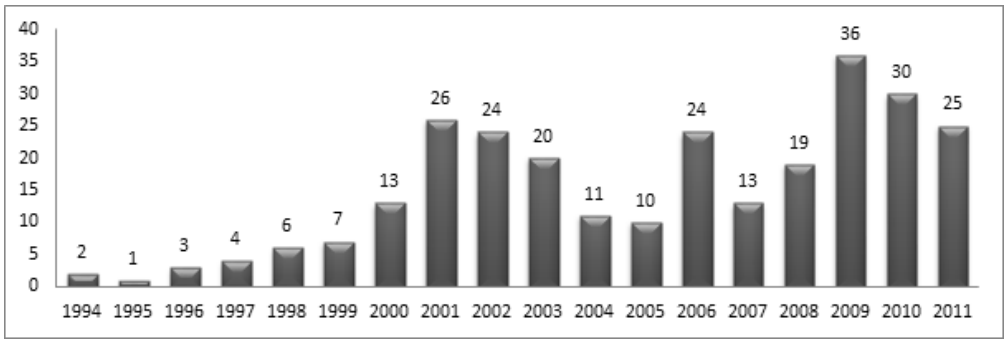
3.2.1 Consideration of energetic fusions

The judgement of a fusion should always be subject of detailed consideration because higher concentration, beside its efficiency benefits, usually means lower level of competition. In case of economic crisis it is of high importance whether supporting companies in economic difficulties or permitting a fusion holds lower risks. Namely latter may distort market structure while government support is only a temporary action (Laki and Voszka, 2010).

With the economic turmoil the number of fusions announced to the Commission decreased. In 2007 there were 402, in 2008 347 and in 2009 only 259 cases were recorded by the Competition DG. An upswing came in 2010 with its 274 cases and it seems to continue in 2011 according to the mid-term 228 announcement.[3] The temporary decline in the number of fusions is explained with the fact that during economic crisis company saving fusions are more general within national borders, so they do not reach Community market (Reynolds et al., 2011).

The number of EU-level energetic company fusions reflects the opposite tendency. The peak of 2001-2003 was followed by a lower merger activity, apart from fusions in 2006. Mergers multiplied from 2007, they reached the highest level of the decade in 2009 and only started to decline in 2010.

Figure 5: The range of energetic fusions announced to the European Commission between 1994 and 2011



Source: Own edition based on the data of European Commission Competition DG

The numbers shown in Figure 5 reflect the fact that energetic companies did not get into serious crisis, the economic turmoil has boosted/accelerated the already started consolidation process on the EU energy market. (Moreover these data do not contain the national transactions which are said to be a general characteristic of this special sector.[4]) In this economic turmoil the number of fusions both in national markets and with EU relevancy increased. If we examine the decisions, the Commission had

[3] Data are from Competitive Merger Case Statistics from the official homepage of the Commission.
[4] Often smaller energetic companies get sold, so there is no need for Community approval. An example for such case is the acquisition of Envacom by Gazprom, with which the German authority has approved the Russian player to be set on German electricity market (Kis lépés ez…, 2011).

investigated 110 cases during the crisis (from the summer of 2008 until autumn 2011) and all of them were permitted. This fits the trend, since only 3 of the altogether 2956 mergers from all sectors of European economies were not allowed to be created.[5] Thus in our opinion there is no evidence for the temporary allowances made within competition regulation.

Analyzing the range of fusions permitted with commitments in the period from 2008 compared to the previous period might be even more meaningful. There were only 5 cases in energetics from 2002 until September 2008.[6] Since the crisis commenced there were no case in which phase II. proceeding was initiated. At the same time commitments were made in phase I proceedings 5 times. The first decision was made in case of a merger between a French and a British energy provider (COMP/M.5224 – EdF/British Energy).

> *EdF has announced its intent to buy British Energy in 2008. With this transaction two significant players of the British electricity market could join, but their aggregated market share is still less than 30 percentages. In order to get the permission in phase I procedure of the decision, relevant companies undertook to sell two power plants, and to launch an amount of electricity into the wholesale market. Furthermore, EdF has committed itself to making sites suited for nuclear new build available to competitors (Drauz et al., 2010).*

Similarly the Commission has imposed commitments in cases of EdF/Segebel (COMP/M.5549), Nuon Energy/Vattenfall (COMP/M.5496) and in the acquisition of Essent by RWE (COMP/M.5467). With the 5th decision made in January 2011, Gaz de France could obtain interests in international power market by the help of a merger with International Power Plc. (COMP/M.5978). According to the commitments the latter had to sell its power market interest and divest relationship with RWE in order to maintain the level of competition in the Belgian market.

The growing number of mergers and acquisitions does not mean that the importance and value of the cases are also increasing. The size of the firms, the uncertain economic circumstances, the decrease of demand and the measures of crisis management that bring the ease of listing rates are all responsible for that.[7] Even though the number of energetic fusions has increased on relevant markets of the EU, we could not find serious change in the proceedings of the authorization compared to the experience of the previous decade. This may be traced back to the quantitatively more but in significance smaller cases. It is difficult to answer whether the number of M&A has increased because of the current economic background or owing to the consolidation resulting from more than 10 years of liberalization process. In the justification and evaluation we can rarely find the crisis, after all new circumstances brought new guidelines in consolidation. Profitability and secure capital background became even more important. Meanwhile the pressure from the market and regulators are much more intensive towards development of infrastructure and energy efficiency. So it seems to be a good strategy also in Europe to find a partner with stabile financial background to be able to invest, as it is written by Feibelman (2011) in connection with the American market.

[5] In the previous 13 years, between 1990 and 2002 18 mergers/acquisitions did not receive Community approval.
[6] The legal background of the judgements was articles 8(2) and 6(2) of the former Regulation No. 4064/89 and the current Regulation No. 139/2004 about merger control.
[7] According to Ross (2011) similar happens on US energy markets. Even the number of fusions did not change (it was 37 in 2010 and 36 until November 2011), the value that they represent has declined. Worries coming from the volatile stock prices and from public debt have important share in this.

3.2.2 State aid in energy sectors

With the outbreak of the crisis state aids referred significantly to the corrections of financial market and for bank savings. Banks have resorted 1600 billions of Euros (the 13 percentages of GDP of the EU) in the period between October 2008 and the end of 2010 (European Commission, 2011c).[8] Commission has stressed that bank supporting is important because of its special function and must not be considered as a precedent for other sectors of the economy (Kroes, 2009). Nevertheless, supports and state aids have spread in real economy as well, but in much lower extent thanks to the mediate prosperous effect of bank supports. Fields beside the financial sector received altogether 81 billions of Euros, but only 26 percentages (0.2 percentages of EU GDP) have been used to recovery until the end of 2010 (European Commission, 2011d). This belongs to the second wave of crisis management tools, among the stimulant measures. These measures are generally based on Keynes' theory which means demand side economic policy with budgetary expansion but may vary from each other (Dessewffy, 2009).[9]

The mediate effect of supporting the financial and real economy sectors had improved the conditions of energetics as well. Even though it was not the energetic sector that has been damaged seriously in recent years, its strategic characteristic and its long term potential make it impossible to leave it alone neither on EU-level nor on national level. We have found some examples for economic stimulation.

> *The Commission has approved several state aid in energetics between 2009 and 2011. Such action was to support the construction of CO2 capture, transport and storage facilities in the Rotterdam area, The Netherlands (N381/2010), the support for the construction of a district heating network in the Northeast of Paris, France (N630/2009) or the construction of interconnection and cross-border power line between Poland and Lithuania (N542/2010) (Feldner and Thalhammer, 2011). Another example could be the €16 million Austrian support approved by the Commission to an environment-friendly project by Verbund-Austrian Thermal Power (N295/2008).*

The above mentioned cases are all development supports, which affirms that serious company-saving actions or capitalizations were redundant in the energetics because of its defensive characteristic.

Tax-allowances also stimulate energy management. Great amount of this is the reduction of taxes on CO2 emissions or the exemption from energy based taxes. An example for the latter mentioned is the tax rate reduction for the glasshouse horticulture sector in the Netherlands (N270/2010). Unfortunately such reductions and allowances prefer also energy-intensive or polluting industries (Commission of…, 2009). Such happened in the SA.32875 case when lower rate for supplies of natural gas in Northern Ireland (to industrial and services sectors and agriculture) was approved.

Using fixed energy prices is also a tool serving the reserve of energy demand. In 2008 Slovakia and in 2010 Hungary applied this measure temporarily, but in 2011 electricity prices rose again in Hungary.

Among general economic stimulant measures we can find more and more examples that serve energy efficiency or support the usage of green/clear energy. Belgium, Finland, France, Poland, Portugal, Spain, Slovakia and the United Kingdom have launched programs in order to help the economic

[8] Bank guarantees mean further 1.2 billion of EUR (9.8 percentages of EU total GDP) (European Commission, 2011b).
[9] We can find government orders, public infrastructure developments, the support of private investments or the increase of household consumption through decreased taxes or increased social expenditure (Laki and Voszka, 2010).

recovery through energy industry as well (OECD, 2009). In 2009 13.2 billions of Euros were spent through state aid for such projects within the European Union (European Commission, 2011a). These steps bring us towards the long term efforts of crisis management.

4. Proceeds and possibilities on energy markets resulting from the crisis

During economic fire-fighting we have to take into consideration that *power and sustainability of growing in European economies can be ensured only by* energy system re-structuring, which means *improved energy safety and lower emission of greenhouse gases*. That is why in 2009 the European Union has decided to establish a programme to aid economic recovery by granting Community financial assistance to projects in the field of energy (European Parliament…, 2009). The dedicated financial facility (fund) connected to this program has special importance, because crisis has extinguished large amount of energetic investments.[10] This fund can help increasing the investments in order to reach the above mentioned goals.

Since the project is a Community initiative, it does not belong to the category of traditional state aid formally. The European Commission has chosen three fields – gas and electricity infrastructure, offshore wind energy, carbon capture and storage – that are capable of making efficient and effective use of significant amounts of financial assistance and catalyzing extra investment from other sources, like the European Investment Bank.[11] This may have positive effects not only on related sectors and companies but on the whole economy thanks to its spill-over effects.

The budget of the European Energy Programme for Recovery (EEPR) in 2009 and 2010 could allocate almost EUR 4 billion financing the three chosen fields (European Commission, 2010b). The evaluation report of 2011 is prosperous: "*The programme provided a unique opportunity to boost strategic EU investment projects, particularly during a period when pure commercial considerations, combined with the economic and financial crisis, were limiting new investment.*" (European Commission, 2011e, p. 5). Financial sources may be increased from further state investments, as the Energy Commissioner has highlighted it. According to him state participation in energetic investments of inter-connections is worth considering, since public sector in average gives 16 percentages of all energy consumption within the EU (Rosemberg, 2010).

4.1. Will there be a green outcome from the crisis?

One benefit of the decreasing electricity and gas demand of recent years is that there is a markable decrease in the emission of greenhouse gases and carbon-dioxide. It may happen that this effect will be seen only in short term and only because of the recession (OECD, 2009). The running of energy efficiency and saving projects can be questioned because of the low oil prices and so the return possibilities of green energy investments.[12] Owing to the short term crisis management preferences can change and state incomes can lower and may distract resources from energy efficiency and climate change programs. Investment re-scheduling and supervising are not answers belonging only to governments, but in recent years the measures of companies, citizens and local authorities have also

[10] Regulation (EC) No 663/2009

[11] The annex of the regulation contains those projects that are considered to be worth of supports by the Commission. Such project is the establishment of Southern Gas corridor, the Baltic interconnection and further 9 programs of Central and South-Eastern Europe, out of which Hungary is involved in 5 projects.

[12] If the renewables could compete only with governmental support at an oil price of 140 USD/barrel, then a permanent price of 80-100 USD/barrel is even worse from the aspect of future return.

decreased. All the today cancelled green or efficiency based energy investments will cause higher emission in longer term.

EU-level and state commitment towards green energy seems to be strong despite of the recession (Robins et al., 2009). Crisis gave new impetus to create and put a new and – from the perspective of energy and pollution – cleaner production structure into the focus of economy stimulating programs. From state crisis management packages of autumn 2008 almost 14 percentages (around 28 billion of EUR) were destined to such investments (Robins et al., 2009). But we must add that different member states represent different attitude in this field.

> *The average 14 percentages comes from contributions like: the United Kingdom 7, France 8, Germany 19, Italy 1 and Spain 10 percentages (Robins et al., 2009). The new Central and Eastern European Member States differ also in their approach. In case of Slovenia, Slovakia, Latvia, Lithuania and Hungary we cannot see significant opening towards the support of renewable energy sources. Meanwhile the Czech Republic and Poland give at least chance to the economy stimulant power of renewables, and Bulgaria, Estonia and Romania have addressed supports to several energetic investments related to renewables since the economic turmoil (Fouquet, 2009).*

A possible "green get-out" is supported by an EU-level 2011 initiative about the introduction of a common energy tax system, which can help cleaner energy resources becoming cheaper than those charging the environment. The "budgetary green reform" would mean finding the balance between the decrease of income taxes and the increase of taxes assessed on energy resources and contaminants (Hayles and Normander, 2011).

> *Previous decisions also meet this idea. The Commission has accepted an Italian initiative in 2008 about a lower tax rate on bio-fuel compared to the 22 percentages rate on traditional fuels (N 529/08).*

The European Union and its member states see the solution not in introducing new taxes, but in the reconstruction of the tax system, in order to serve those consumers that use environmentally more friendly energy resources (Lomas, 2011). It can be easily seen how the worsening financial and economic situation and the commitment towards green energy strain each other. We will see the stronger force from the level of emphasis of environmental aspects among answers in crisis management, and from how these measures will be carry out.[13]

4.2. Changes in the regulation

4.2.1 The effects of crisis on Community energy market liberalization process

During crisis usually national challenges and urgent economic problems are solved contrary to the previously accepted common international interest, risking also further opening for instance. In energetics the situation is not that sharp.

European energy markets were hit by the crisis in a period when the liberalization process started in 1996 had not yet been closed. The third package of energy liberalization was accepted by the Commission after a long period of negotiations in 2009, so during the economic turmoil. The Directive

[13] According to a January 2010 report of Energiacentrum, the green investments have increased by 5-10 percentages compared to previous year. Its reason may be that investors are disappointed in other fields of the economy and seeing perspective in this field they open toward renewables.

contains three important changes: the improvement of the access conditions to gas and trans-border electricity transmission systems and the establishment of the Agency for the Cooperation of Energy Regulators (ACER).

However this regulation did not also force giant energy market players to make real ownership unbundling – which was the original Commission recommendation – but they could keep their previous networks with the creation of an independent supervision. It is not easy to decide whether this outcome results directly from the crisis or this way of regulation would have happened also if the economic turmoil had not taken place. Anyway during the 2009 negotiations we could already hear voices/opinions about the need for a new, fourth package to assure further development (Johnstone, 2009; Simon, 2010).

The deadline of making essential steps involved in the third package expired in spring 2011, but none of the member states has signed to fulfil their duties in the beginning of the same year. On the contrary, at that time more than 60 infringement proceedings were under way on the second internal energy package alone (European Commission, 2011b).

The preparation of new liberalization provisions were followed by the *Climate/energy package* adopted in December 2008. It became part of acquis communautaire only in 2010 as part of Europe's transformation, an answer to the crisis by the EU 2020 Strategy. The relationship between climate change and energy is a key element of the strategy, where the detailed "20/20/20" goal became drafted. Its meaning/aim is to "*reduce greenhouse gas emissions by at least 20% compared to 1990 levels or by 30%, if the conditions are right; increase the share of renewable energy sources in our final energy consumption to 20%; and a 20% increase in energy efficiency*" (European Commission, 2010c, p. 11).

In 2011 the European Union could reach only one important achievement, which was the draft directive about energy efficiency (Tindale, 2011). One of its ideas is that recovery from the crisis would be easier and it would help the environment if Europe is able to utilize available energy. Unfortunately the adoption of the document seems to be difficult because of substantial member-state opposition to this Commission proposal – some on grounds of subsidiarity, and some on grounds of cost.

4.2.2 New system instead of regulatory patchworking?

It looks like energy sectors are being emphasized Europe-wide because of the crisis and thanks to the leadership of the EU not only the previously mentioned member states dedicate further importance to green energy. From financial market experiences we can say that the perfection of energy regulation would be crucial. Getaway financial market investors see perspective in energy projects if an effective framework gives assurance to them.

The complexity and success of energy market regulation is highly determined by political and institutional circumstances and by current regulation-economic aspects. Three levels of energetic regulation can be observed on European markets in the last 20 years: recognition of the importance of supranational interventions, then creation of necessary institutions and finally the adaptation to the requirements of the growing European Union (Vasconcelos, 2009). Present economic crisis strengthens the necessity of supranational regulation in this field also. And if we take into consideration the central elements of the new Climate/energy package – energy efficiency, efforts to create a clean energy portfolio or interconnection of different energy systems – reconsidering original energy market measures seems to be of highest importance. The period of changes would be a perfect background to take this step. Both the European Union and member states can make the first steps in

the adaptation of energy market regulation to post-crisis situation. Without effective European energy market regulation the supervision can become stronger also on national level, which leads to the creation of regional energy markets. This outcome is also supported by the EU.

5. Summary

Crisis has also left its signs on crisis-proof energy sectors. Energy demand decreased, although thanks to its inflexibility in lower amount compared to other sectors. The fall of investments caused by the decrease of prices and demand and the general uncertainties were somehow balanced by surplus of money and political and economic interests coming from other sectors.

Primarily/Mainly national level supports treated the energetic effects of economic crisis. However competition regulation slacked less in connection with this sector and supports serve rather development than company-saving. Other measures of crisis management – like extra taxes, privatization and the extent of state ownership – can be observed here, but mainly in the sense to obtain and assure short or long term income from the sector. *Energetics became not only the subject but the measure of crisis management.*

Beyond the continuation of liberalization process the European Union is committed to the fight against climate change and to energy efficiency. So even if it seems that during economic and now euro-crisis non-financial sectors get into the upstage, it looks like energetics are getting more attention. The *sector may obtain gains from crisis if approved state aids and energy projects with Community financial assistance are realized.*

Future of the European energy market is determined by today's crisis management measures. The period that holds the possibility of changes gives good circumstances to the regulative restructure, the strengthening of international coordination even if the lack of financial and natural resources restricts the attainment of commonly accepted goals. Next few years will show how Europe can exploit the possibilities coming from energetics and regulation economic adaptation. The significance of regulation and tax-system changes made in the name of "green get-out", supports from the Community and their execution could be much bigger as it is seen from today's short term interests.

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Hungarian higher education and its international comparison

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In the Széll Kálmán Plan the government committed itself to transform the higher education system; this change is necessary and actual.

Reduction of neither the state-controlled higher education institutions, nor the number of students participating in higher education is justified: in an international comparison the number of Hungarian state-controlled institutions is significantly below the European average; in terms of the number of state financed students per one million inhabitants our arrears is considerable compared both to the surrounding and to the European developed countries. Number of people graduated in higher education in Hungary is below the OECD and UE19 average. In terms of higher education expenditures Hungary is amongst the last countries. However, government investments into higher education return significantly; Hungary is within the leading group in terms of this index. While rate of employment in basic and secondary education is below the average of OECD and EU19, our index in higher education is average or even above that. In the case of an employee with a higher education qualification the increased tax incomes mean approximately 20 million Ft additional income as compared to the case of a physical employee.

Education directly defines the development path of a country; therefore it is extremely important for trends of modification to be professionally established and to serve growth.

Keywords: higher education, return, economic and social benefit

1. Preamble

Educational policy and education in general are currently undergoing a considerable change in Hungary; these changes are highly relevant both in the public and in the higher education sectors. The education of the intellectual elite is a highly important responsibility for every competitive nation. However, *what kind of and what size of higher education sector does the state need*? To answer this question, we should first consider the government's involvement in this sector. As qualified labour force serves the achievement of economic and socio-political objectives set by prevailing governments, the state needs to get involved in the management and organization of education in several fields. The government is to undertake the tasks of determining the main directions of educational policy, of allocating the required means, and of providing for the related legislative framework. On the one hand, the state ensures the institutional frameworks (maintains buildings, employs professors, etc.), on the other hand, it establishes the various conditions for those being part of the education sector (youth hostel accommodation, scholarships, etc.). *The state* performs all this, because *along with the taxpayers it expects a certain rate of return for the maintenance of the education sector*.

Those being part of the higher education sector represent a special interest group, and everyone's ultimate goal in this interest group is to conclude a "good deal". From the aspect of the "result" it is highly important for those being part of the education sector to be able to use and make use of their acquired knowledge to the best possible extent. For the achievement of successful cooperation,

competitive and modern knowledge is required, which can be made efficient use of in the labour market, but this can only be provided by a modern education system.

By the introduction and implementation of Act CCIV of 2011 on national higher education, *today the higher education sector in Hungary is undergoing an important transformation, which will fundamentally change the operation of universities and colleges*. [It shall change] their operation as to their fundamental activity, and their management providing for the conditions to implement that fundamental activity.

In terms of the basic activities, the new challenges not only raise, but necessitate the rethinking and reconsideration of the role and mission of the higher educational sector, as well as the determination of new requirements pertaining to education, research and other services. For the renewal and development of higher education, which is inevitable for the avoidance of ultimate disattachment, it is necessary to determine future development priorities and the most important responsibilities facilitating their achievement.

By providing an analysis of the current situation, this study aims to find answers to issues of primary importance[1], which are often raised today in terms of the higher education sector, while certain characteristics of the Hungarian higher education sector are intended to be analysed and compared to other international examples.

2. Development of the Institutional Framework of the Hungarian Higher Education Sector

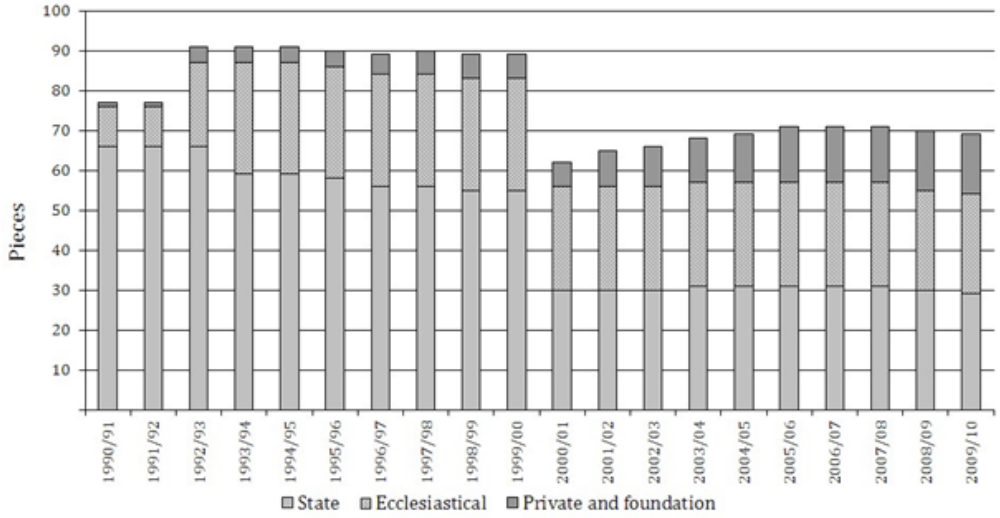
One of the important changes in the Hungarian higher education framework is related to the ratification of the independent higher education act in 1993, which rendered it possible for non-state financed (ecclesiastical) higher education institutions to start secular specializations, in line with those operated by the state financed institutions. From that point of time, the number of state financed institutions started to decrease, - even though to a very modest extent. However, the fundamental reason for the decrease in the number of the institutions was not due to their termination, but their integration. The increase in the number of ecclesiastically financed institutions was threefold by 1993 already, while the number of private and foundation institutions is increasing even today (Figure 1).

In 2000, the number of state financed higher education institutions decreased to almost half of their previous number[2], as a result of government measures attempting to reorganize the subdivided higher education institutional framework. However, the actions primarily targeting to achieve a more cost effective higher education sector yielded only partial results, as although there was a decrease in the number of higher educational institutions, but no institution was actually closed.

[1] Does it make sense to compare public education usually performed at a lower standard to the elite education involving less people, but performed at a higher standard? Could less well-to-do people be gradually "excluded" from higher education? Is it worth attempting such a thing? Is there a need for so many highly educated people? Does higher education cost too much? Does the theory of human capital make any sense? Is it worth investing in higher education? Does education accelerate economic development? Are our postgraduates competitive enough, and if not, what changes should be introduced to improve this situation?

[2] In the 1999/2000 academic year there were 55, while in the 2000/2001 academic year there were 30 state financed higher education institutions in the country.

Figure 1: Changes in the number of higher education institutions in Hungary between 1990-2009



Source: Internally developed as per NEFMI statistics (NEFMI, 2010)

Today there are 69 higher education institutions in Hungary, comprising 18 state financed universities and 11 state financed colleges, the rest are either private or foundation institutions, or ecclesiastical institutions. *Recently the opinion has been increasingly vocalized, according to which there are too many higher education institutions in Hungary. But is this really the case?*

The international analysis of the number of higher education institutions is not an easy task to start with, as this index is not listed among the OECD indicators. By looking at the average data of 29 European countries, the ratio of state financed higher education institutions is 63% of all higher education institutions, whereas this figure is 45% in Hungary, *namely the percentage of state financed institutions is significantly lower than the European average*[3].

By comparing the absolute and nominal (per one million people) indicators of Norway and Austria having lower-number populations than Hungary[4], the Czech Republic having approximately the same number of population as Hungary, of Poland having an almost four times higher number of population, as well as of Germany, playing a leading role in Europe in many aspects, we can reach the following conclusions. In 2008 there were 31 state financed higher education institutions in Hungary, whereas this figure was 38 in Norway, 42 in Austria, 130 in Poland, 142 in the Czech Republic and 234 in Germany. The number of stated financed higher education institutions per one million people was 2.8 in Germany, 3.1 in Hungary, 3.4 in Poland, 5.1 in Austria, 8.0 in Norway and 13.9 in the Czech Republic. These numbers clearly demonstrate that the number of our *state financed higher education institutions is not extraordinary either from an absolute, or from a nominal point of view* in terms of the European countries listed above.

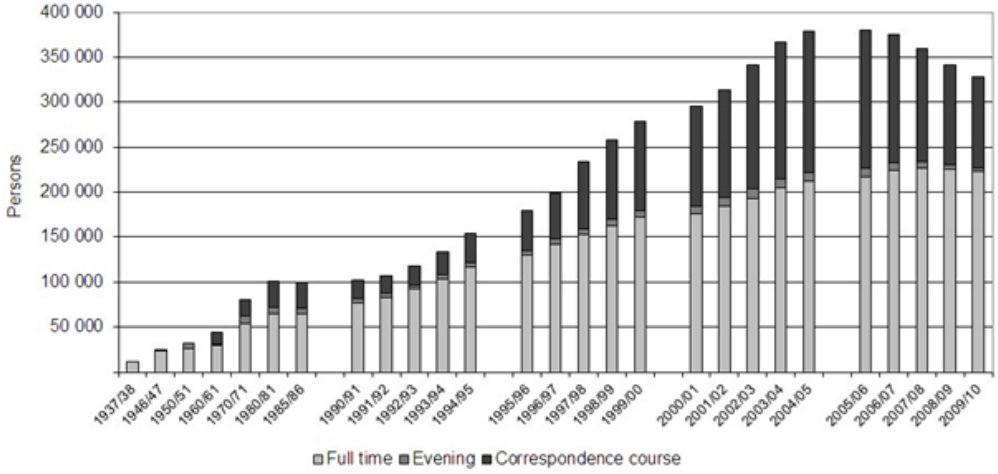
3. Data on the Number of Undergraduates

At the turn of the 20th century there were approximately 10,000 students involved in university education, which number was increased by four and a half times by the start of the 1960s. In the

[3] In Hungary the 55% ratio of ecclesiastical, foundation and private higher education institutions significantly exceeds the average ratio of 37% of the 29 European countries taken under review.
[4] As per 2008 data: 4.763 million in Norway; 8.264 million in Austria; 10.221 million in the Czech Republic; 38.166 in Poland; and 82.210 million in Germany.

Western countries it became evident thirty to forty years ago, whereas in Hungary it became evident in the past few years that the massification of higher education is inevitable: globally there is an increasing interest in studying, and in the developed countries there is no government that would have the courage to prevent that. "We are living in the age of supermarketed knowledge, as there is an increasing mass of people wanting to consume it, however, they are not interested in learning it in the same manner and form, as it had been taught before" (Lukács, 2002a). Economic development in the 1960s and 1970s made it possible for many to join higher education, and the number of postgraduates started to increase gradually and considerably from the 1970s. The term "knowledge based society" was moved into the focus point of the social and cultural strategies of the developing and developed countries, as well as of supra-national organizations. By the second half of the 1980s the increase in the number of undergraduates started to stagnate, the next radical change in numbers took place after the change of the political regime. The number of higher education students[5] almost quadrupled between 1990 and 2005, the recent past was characterized by a fairly intensive increase in the number of undergraduates both in the OECD, and in the EU 19[6] countries. In recent years, however, the number of undergraduates in Hungary has demonstrated a declining tendency compared to the record data of the 2005/2006 academic year, and on the basis of available demographic data[7] this tendency is expected to continue (Figure 2).

Figure 2: Trends regarding the number of students of higher education institutions in Hungary between 1937-2009



Source: Individually edited as per NEFMI statistics (NEFMI, 2010)

In the 2009/2010 academic year the total number of undergraduates at the Hungarian higher education institutions was 370,331, of which 320,919 students (89.7% of the total number of undergraduates) pursued their studies in one of the 29 state financed institutions. Lately there has been an increasing

[5] The data on the number of undergraduates includes the number of students involved in university and college education, in post-secondary level vocational training, BA and MA education, full-time education, special vocational further training and PhD programs, irrespective of the educational framework.

[6] In the OECD statistics many indicators imply average values from "EU19" countries. The reason is that factual or predictable data are available for these European Union member states. in the OECD statistics EU19 countries consist of the following: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, United Kingdom, Czech Republic, Hungary, Poland and Slovakia.

[7] http://hu.wikipedia.org: The decrease in population in Hungary has been 737,000 since 1981 according to the data of the Central Statistical Office (KSH) (In April 2011 the estimated number of the population was 9,972,000.) In the period between 1988 and 2009 the country's migration gain was 363,504, therefore, without the minority Hungarians (from across the borders) migrating to the country, the decrease in population would exceed 1,000,000.

pressure to reduce the number of students attending higher education institutions. But does it seem reasonable to reduce the number of postgraduates?

As per 2008 data, Hungary stays behind all the countries involved in the survey in terms of the number of undergraduates (21,324 students*) attending state financed institutions per 1 million inhabitants*. The number of undergraduates attending state financed institutions per one million inhabitants is 24,639 in Germany, 28,974 in Austria, 33,211 in the Czech Republic, 37,970 in Poland and 38,409 in Norway.

By looking at all the European countries up to the eastern borderline of the European Union, the number of state higher education institutions per one million inhabitants is 5.7, and the number of undergraduates is 34,000.

According to 2008 data, 19% of the adult population attended in post-secondary education, while 61% and 20% of the adult population held secondary and elementary level educational certificates, respectively. From 1997 the number of people holding post-secondary certificates in Hungary was gradually increasing at a rate exceeding the average increase in the OECD and EU 19 countries. In 2008 the average data taken from OECD countries indicated that 29% of the adult population held post-secondary certificates, while 44% and 28% of the adult population completed secondary and elementary level education, respectively (Table 1).

Table 1: Tendencies in education levels in the age group of 25-64 (1997-2008) (data in %)

Description	Level of education	1997	1998	2000	2005	2006	2007	2008	Average annual growth rate 2008-1998
Hungary	**Elementary**	**37**	**37**	**31**	**24**	**22**	**21**	**20**	**-5,8**
	Secondary	**51**	**50**	**55**	**59**	**60**	**61**	**61**	**1,9**
	Post-secondary	**12**	**13**	**14**	**17**	**18**	**18**	**19**	**3,8**
OECD average	Elementary	36	37	36	31	30	30	29	-3,1
	Secondary	43	42	42	44	44	44	44	0,9
	Post-secondary	21	21	22	26	27	27	28	3,4
EU 19	Elementary	36	38	37	30	29	29	28	-3,3
	Secondary	46	44	44	46	47	47	47	1,2
	Post-secondary	18	19	19	24	24	25	25	3,5

Source: OECD (2010)

By focusing on higher education data, it can be stated that *in Hungary the percentage of postgraduates in the age group of 25-64 remains below the OECD average and stays behind the average of the EU 19 countries*, despite the increase recorded in recent years. By looking at the higher education enrolment ratios leading up to 2006, the situation seemed promising, the number of graduate students increased abruptly as a result of the intensively increasing number of new entrant undergraduate students. Considering the fact, however, that as of 2006 the higher education enrolment number of students has been gradually decreasing, and with the latest news about drastic cuts in the number of state financed quotas taken into account, *it can be plausibly assumed that in the future the ratio of*

*undergraduates in the adult population will significantly lag behind the average figures of the OECD and EU 19 countr*ies.

The greatest challenges of university education are represented by the demands of a knowledge based society[8] and by the requirements of globalization, which has been manifested in the expansion of higher education. In the developed countries, the number of people pursuing higher education studies has been steadily increasing since the 1960s and 1970s. We have seen examples, where this increase stagnated in a country for a while, but there has been no example for a total reversal. In Hungary the number of new entrant undergraduates represented the equivalent of 65% of those leaving secondary school, which corresponded to the average of the region, however, it stayed behind the 70% ratio of the Western countries (Molnár, 2011). Comparing Hungary to the OECD and EU 19 countries, and considering the pursuit targeting national competitiveness, *the cut-down of the number of undergraduates in state financed institutions and of those involved in post-secondary education does not seem reasonable* (Bazsa, 2011).

4. Structure of Higher Education

It is the responsibility of the educational policy to ensure that the available resources are best utilized to the benefit of the economy. It also requires that feedbacks from the labour market are taken into consideration, which are to be aligned with the training capacities.

"The state wastes tens of billions of Forints each year by having a misalignment between the structures of higher education and the requirements of the labour market. If higher education technical education continues to decline, the processing industry may be deprived of its supply of labour force. In the competitive sector there has been an increased demand for postgraduates of technical faculties, however, the higher education sector continues its expansion towards education in the humanities, and does not, or does only fairly slowly respond to market demands" (Széll Kálmán Plan, 2011).

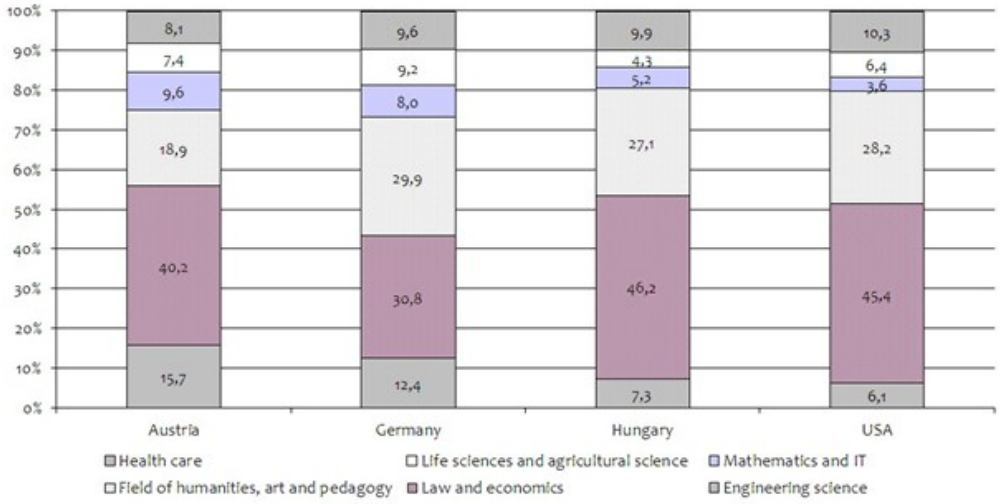
During the years of the change of regime, in the Hungarian higher education sector 37% of the undergraduate students attended teacher training courses, 20% attended technical faculties, 10%-10% pursued healthcare and economic studies, respectively, and 4-5% studied at legal, social sciences and agricultural faculties. By 2009 the following changes occurred with respect to the educational areas (Figure 3).

1. The majority of the students (24.1%) pursues economic studies, in the past 20 years the number of students studying in this areas has become eightfold. Since 2006 the popularity of studying economics has been declining, in four years' time the rate of change has reached -17%.
2. In 2009, 15.8% of the students pursued technical studies. By 2009 the number of undergraduates studying at technical faculties exceeded the 2005 data of over 50,000 students.
3. In the past 20 years the biggest hit was suffered by teacher training faculties. While in 1990 approximately 40% of the students pursued related studies, by 2009 this number fell below 7%.
4. In 1990 1.6% of the undergraduates studied at faculties of sciences, while today this ratio is 3.7%.

[8] In 2000 the EU established in Lisbon that by 2010 the Community should become the world's most competitive, most dynamically developing knowledge based economy (Keczer, 2007).

Figure 3 offers a comparison of the Hungarian education structure to the same in Austria, Germany and the US. In Hungary, legal and economics educations are significantly more prevalent than in the other two European countries, however, in the education fields of engineering, mathematics and information technology, as well as of life sciences and agriculture we fall behind the Austrian and German figures.

Figure 3 Structure of education in certain OECD countries, 2008



Source: OECD (2010)

The structure of education has undergone considerable changes in the past 10 years. As there was an increasing demand for postgraduates in the labour market, the institutions attempted to adjust the range of their educational services, both in terms of the theoretical and practical fields. Practical education is in theory adjusted to the demands of the labour market[9], which are being inevitably transformed by the ongoing technological developments and globalization processes. *The higher education sector needs to have an increasing number of new specializations certified to be able to keep abreast with market demands*[10]. The pressures of development and compliance with market demands require a transformation of the fields of higher education, in the process of which the opportunities and potentials giving ground to a breakthrough of the country should be inevitably taken into consideration. On the one hand, the areas where progress is imperative should be taken into account, e.g. "The development of high added-value industrial sectors (health care industry, high-tech, innovation R+D, green economy) requires the improvement of the domestic educational fields of natural sciences and engineering" (Széll Kálmán Plan, 2011). On the other hand, however, the issue of over-education should be resolved. *The higher education sector could benefit (at last) from the compilation of an education development strategic plan partly based on and leveraging Hungarian values*. The world has changed around us, and we need a competitive higher education sector, and if the higher education section in general is said to be being industrialized globally, we need to accommodate. Today's Hungarian higher education is still in a mulish condition: it has been affected by massification, but it is still operating in an indefinable "quasi market" framework, which is just as much determined by customary habits, as by the pressure of meeting global market expectations (Lukács, 2002b).

[9] Compliance with the demands of the labour market is not an easy task. On the one hand, it is difficult to foretell what the demand will look like in 5-10 years' time, and on the other hand, compliance is a long-term process, higher education periods last for a minimum of 3 years.

[10] Széll Kálmán Plan (2011): "*The structure (and institutional scheme) of higher education is currently distorted, the services offered by the sector are not in alignment with the demands of society and of the labour market."*

5. Achievements of the Higher Education Sector

According to the arguments and counterarguments associated with the support of and rate of use of the higher education sector, both the state and those involved in higher education are considerably interested to maximize the number of highly qualified people holding degrees.

In the view of Friedman, *the state is expected to spend on higher education, as a significant volume of public benefits is created by education* (Friedman, 1996). It is a fundamental question from the state's perspective what those public benefits are and if the investments in the higher education sector are expected to yield returns. The effect of education on economic development is best explained by the concept of human capital, as proposed by Schultz (1983). According to his theory, *human capital* is similar to *investments*, which represent the *final results of costly and time consuming procedures*. Human capital equally contributes to the productivity of labour force and to entrepreneurship. If a student obtains his/her degree, it represents direct profit both on the state's and on the employee's side. From the state's perspective, profits are associated with *higher productivity*, *higher tax incomes and a higher level of consumption* in exchange for lost time. *Highly qualified labour force tends to be more flexible, cross training* and finding employment in new fields are made easier, i.e. this may *decrease* the amount of *potential transfer payments* to be made by the state. On the employee's side, higher qualification creates *better employment opportunities*, *higher wages*, which result in *higher savings*. It results in *higher employee mobility*, employees will *find employment* in other vocations easier, and they will be less affected by the labour market's changing demands.

Higher education qualifications also entail indirect financial benefits, which although are more inconceivable than direct benefits, however, their existence is unquestionable. The state can perceive the indirect benefits of higher education by way of a higher sense of social mobility, *lower crime rates, and increased number of charitable donations, better adaptation of new technologies* and by social diversion. The indirect benefits of the private sector are characterized by *better working conditions, higher social standing* and higher level of satisfaction, *improved health conditions* and *longer life expectancy*, an increased number of hobbies and spare time activities, and by personal fulfilment (Vossenteyn, 2004).

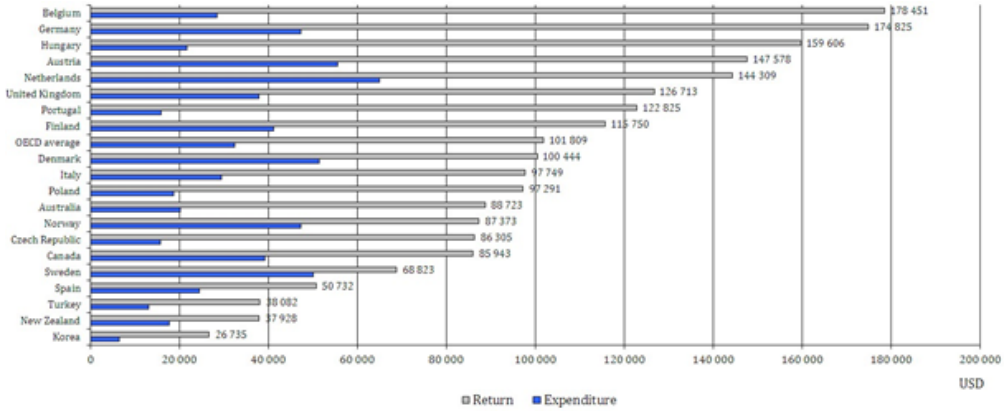
The analysis and quantification of the indicators attributed to the direct and indirect social benefits created by the higher education sector are not simple tasks, therefore the description of their rate of use is difficult.

6. Total Economic Benefits of the Higher Education Sector

According to OECD data, *Hungary is in a leading position*[11]*, in terms of the rate of returns of state funds invested in higher education*, as the rate of return is 1.6 times higher than the average data in OECD countries, while our related expenditures are significantly lower. (Figure 4) *Higher education in Hungary benefits society to a higher extent than non-higher education trainings, and at the same time demonstrates the highest rate of return of all other training levels*.

[11] Portugal is listed first, where the rate of return is 7.7 times higher than the expenditures; Hungary is listed second, where the ratio is 7.4; Belgium is listed third with a ratio of 6.3. The ratio is the lowest with 1.8 in Norway, in other words the rates of return from the higher education sector exceeds the expenditures in each one of the countries taken under review.

Figure 4: Government funds invested in higher education and the related rates of return in OECD member states[12], 2006



Source: OECD (2010)

The effects of expenditures invested in education are reflected at a significantly later point of time, after 15-20 years. That is why it is crucially important how much is invested in education today. *What amount should the state spend on higher education?* It is not easy to answer this question, however, not impossible. *If the state's role in and expectations as to the higher education sector are clearly defined, if requirements are specified, then our higher education institutions may answer the question, by relying on their available data bases and by making use of the achievements of modern information technology, as to "what" they need to fulfil their tasks. Data supported by facts may provide objective grounds for the discussion of the pro and contra arguments.*

7. Economic Growth, as the Most Important Achievement of the Higher Education Sector

From the state's point of view, the primary achievement of education is manifested in economic growth. The most widely used and most popular indicator of the level of economic development and of the total output of the economy is the gross domestic product (GDP) indicator, an index-number that refers to the level and volume of all goods and services produced by a given country in a given year.

The OECD surveys clearly indicate that there is a significant correlation between the level of economic development and the level of expenditure devoted to education. The correlation coefficient between elementary and secondary education and the level of economic development is 0.83 and 0.88, respectively, which implies a strong relationship between the above criteria. In the case of higher education, a moderately strong (r^2=0.6254) correlation can be demonstrated between the GDP per capita figures and the expenditures used (Figure 5).

[12] According to the OECD study, the so-called "community costs" include lost tax revenues and expenditures. These include professors' wages, maintenance costs of the institutions and scholarships. "Community allowances" include increased tax revenues, and the decrease of social benefits derived from higher incomes. For the calculation of net present value, the interest rates of government bonds were taken into account as discount rates.

Figure 5: GDP per capita and expenditures per undergraduate in 2007

Source: Internally developed on the basis of data taken from OECD (2010)

Nonetheless, it is evident that those countries that spend more on higher education have higher GDP figures, i.e. they have higher developed economies.

8. Result pertaining to Tax Revenues

In order to assess the usefulness of higher education it is appropriate to compare expenditures to revenues. With regard to persons with a higher education degree, the cost of the education itself is viewed as expenditure, as well as the unrealised tax and contribution revenues, suffered by the state during the period of the education. As opposed thereto, the excess tax paid by the citizen in the course of his/her life is viewed as revenue.[13]

In 2008, the gross average earnings in the case of non-manual employees were HUF 274,866 per month, whereas net average earnings were HUF 157,163. This means that a non-manual employee contributed HUF 117,703 to the budget at monthly level, which represented revenues of HUF 1,412,436 per person for the state at annual level. Regarding manual employees the gross wage amounted to HUF 130,823, whereas the net amount thereof was HUF 90,940, i.e. one manual worker paid taxes of HUF 39,883 per month into the budget, which at annual level amounted to HUF 478,596. In total, we can establish that a person holding a university or college degree contributes HUF 77,820 excess tax per month to the state's expenditure. If we assume that an employee works for 34 years on average,[14] then a non-manual employee shall pay more taxes by over HUF 26.5 million during that period.

Expenditures pertaining to education are made up of three parts from the aspect of the state. On the one hand it dedicates funds to the sustenance of institutions, secondly it provides support to the living-

[13] We have no accurate information about how much more tax is paid by those persons who graduated from a higher education institution. Earnings are basically divided by the KSH [Hungarian Central Statistical Office] according to manual and non-manual employees. Those classified 1 to 4 as per the FEOR [Uniform Classification System of Occupations] are non-manual employees, the others are manual employees. Non-manual employees presumably also include a high number of secondary school graduates.

[14] Employment of a duration of 38 years was taken as a basis, from which the period of education was deducted.

related expenses of students, and thirdly, also unrealised tax revenues do represent expenditures, incurred during the period of obtaining the diploma. In 2008, in Hungary the state spent HUF 960,000 on one student on average. This means that the cost of education of a person holding a diploma was HUF 3,888 thousand on average[15]. During an average period of education, the unrealised average tax revenues, based on the above methodology, were approximately HUF 5,720 thousand. The total costs roughly amount to HUF 9,700 thousand, as compared to which there is the excess tax payment of HUF 26.5 million to be found.

When examining the time series of the average monthly tax and contribution payments of non-manual and manual employees, it can be stated that as compared to 2001, the tax payments by non-manual employees (103.3%) increases to a greater extent than those of manual employees (67.3%) (Table 2).

Table 2: Amounts of average monthly tax and contribution payments of non-manual and manual employees, and changes thereof, 2001-2008, 2001=100

Description		2001	2002	2003	2004	2005	2006	2007	2008
Non-manual	*HUF*	57,887	68,187	77,536	82,075	88,252	95,251	108,699	117,703
	%	100	117.8	133.9	141.8	152.5	164.5	187.8	203.3
Manual	*HUF*	23,833	26,270	24,681	25,877	26,656	30,027	37,188	39,883
	%	100	110.2	103.6	108.6	111.8	126.0	156.0	167.3

Source: Individually edited based on KSH (2011) data

The calculations are of approximate nature,[16] we did not take into account that these revenues and expenditures should be calculated as to present value. The above simple model solely highlight that it is worth investing in education also from an economic aspect.

9. Result pertaining to Labour Market

One substantial element of economic growth is that there should be sufficient qualified workforce available in the labour market.

Human capital has been described as a major tool for overcoming unemployment and low incomes, however, as opposed to that the new act on higher education under elaboration outlines a reduction in number of persons with regard to both state-supported education and education subject to tuition fee. "*The state plays an important role in the sustenance of the system of institutions currently fragmented, serving the above structure, which entails a significant burden to the budget. The efficiency and success of the role undertaken by the state may be improved by the reduction of the state-supported number of students and by the modification of the internal structure thereof*" (Széll Kálmán Plan, 2011).

It is a fact that the situation of new graduates entering the labour market is uncertain, for employees are not aware of what is behind the diploma of those just leaving the new educational system (Berde et al., 2006). It is a fact that around the millennium we already faced the situation where it became more difficult for career starters holding a post-secondary degree to find a job, but it is also a fact that those holding a post-secondary school degree are less affected by unemployment, in the case of educational levels this is where the rate of unemployment is the lowest.

[15] The average period of education is 4.05 years in Hungary (OECD, 2010)

[16] The individual calculation pertaining to the year 2008 may be viewed as a simplified quick estimate, int eh course of which the relevant data of the KSH were taken into account (KSH, 2010).

The analysis of the trend of the rate of unemployment between 1997-2008 calls attention to an important fact. While the value of the unemployment rate decreased at each educational level in the average of the OECD and EU 19 countries, in Hungary only the employment situation of those holding a secondary degree has changed in a positive direction (Table 3). This can clearly be attributed to the expansion of those getting into higher education.

Table 3: Trends of unemployment rates regarding persons of the ages 25 to 64, (1997-2008) (data in %)

Description	Degree level	1997	1998	2000	2005	2006	2007	2008	Average annual rate of increase 2008-1998
Hungary	**Elementary**	**12.6**	**11.4**	**9.9**	**12.4**	**14.8**	**16.0**	**17.3**	**4.7**
	Secondary	**6.9**	**6.2**	**5.3**	**6.0**	**6.1**	**5.9**	**6.3**	**-0.6**
	Post-secondary	**1.7**	**1.7**	**1.3**	**2.3**	**2.2**	**2.6**	**2.3**	**0.6**
OECD average	Elementary	10.1	9.4	9.0	10.5	10.0	9.1	8.7	-1.4
	Secondary	6.7	6.5	5.7	6.0	5.5	4.9	4.9	-1.8
	Post-secondary	4.1	4.0	3.5	3.8	3.5	3.4	3.2	-0.9
EU 19	Elementary	13.3	11.4	11.1	13.0	12.1	11.0	10.6	-2.7
	Secondary	8.4	7.4	6.6	6.8	6.2	5.4	5.3	-3.1
	Post-secondary	4.7	4.4	3.8	4.2	3.7	3.5	3.2	-1.5

Source: OECD (2010)

In 2000, in Lisbon the EU laid down the objective for the Community to become the world's most competitive, most dynamically developing, knowledge-based economy by 2010 (Keczer, 2007). One of the important elements of the strategy was represented by the increase of the rate of employment to 70%, in parallel with the mitigation of unemployment levels.

In the OECD countries *higher education plays an ever increasing role on the demand side of human resources*. Demand represents a move towards jobs to be filled by those with higher education qualifications from the direction of jobs that can also be filled by those holding a secondary school degree, the result of which is that the chances of obtaining a job in the labour market increase by the obtaining of a post-secondary qualification. It is employees holding a post-secondary degree who have the highest ratio chance of finding a job, i.e. they are represented among the unemployed – the layer constituting a problem for society – to a minor extent.

In respect of Hungary, whereas employment regarding elementary and secondary education is below the OECD and EU 19 average, as to post-secondary education the value of the indicator is average or above average (Table 4).

Table 4: Rates of employment by levels and gender, 2008 (data in %)

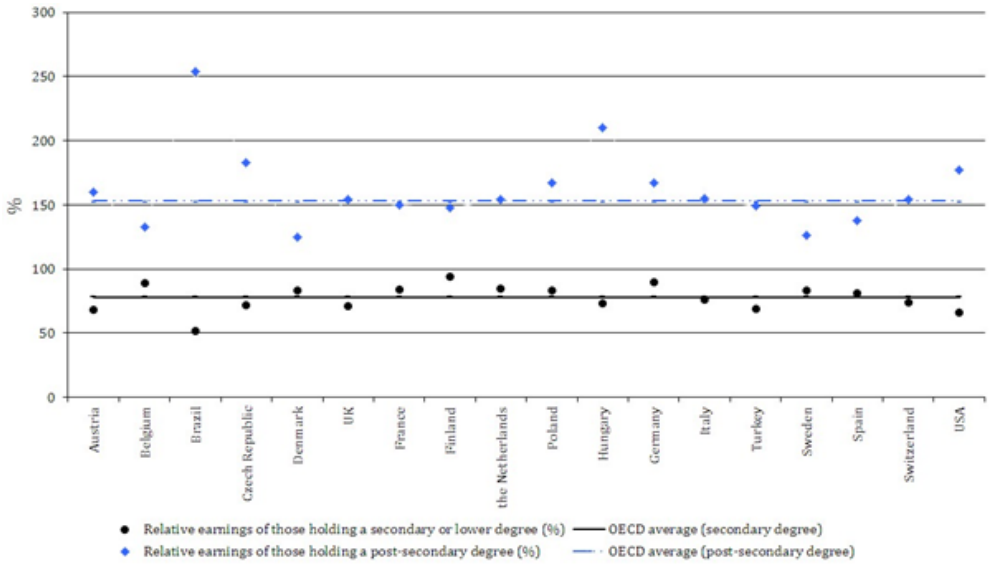
Description	Gender	Elementary level	Secondary level		Post-secondary level	
			ISCED 3C	ISCEBD 3A	B type	A type
Hungary	**Men**	**17.3**	**72.9**	**77.9**	**87.7**	**85.0**
	Women	**5.4**	**56.0**	**64.7**	**81.3**	**75.8**
OECD average	Men	64.5	84.1	83.4	88.1	89.8
	Women	37.0	65.2	66.5	76.9	78.2
EU 19 average	Men	58.1	81.9	82.5	86.5	89.7
	Women	36.1	64.9	68.7	79.5	82.1

Source: OECD (2010)

In Hungary, it is the unemployment of the layers holding a qualification lower than a secondary degree that causes social and economic problems.

Based on OECD data, the level of education and chances in the labour market are more dominant in Hungary than in other countries. The relative income of those holding a post-secondary degree is the highest in Hungary after Brazil (Figure 6).

Figure 6: Relative earnings of the population aged 25-64, pursuant to degrees, in the OECD and partner countries,[17] 2008



Source: Edited individually based on the data of OECD (2010)

10. How much do we spend on Higher Education?

Both the state and the private sector bear costs with respect to higher education. On the one hand, the state supports the institutions through contributing to operational and maintenance expenditure, and, on the other hand, also provides grants and other benefits for college or university students. The related expenses of the private sector include tuition fees, schoolbooks, sustenance fees, costs of living, etc.

The expenditure related to education can be analyzed from a number of different aspects: in general, it is usually analyzed with respect to the proportions of GDP, or with respect to the proportions of GDP per capita. This value indicates how much a nation spends on education in relation to its own productivity.

Based on OECD data, there are three very well separable financing systems at a macro-economic level:

1. High state and high private sector resources: state support exceeding 1% of the GDP, supplemented by private resources in the extent of approx. 1% of the GDP (United States [3.1%]; Canada [2.6%]).
2. High state and negligible private resources: the state support exceeds 1% of the GDP, but the extent of private resources is negligible. This financing is characteristic to most European countries.

[17] When compiling the publication Education at a Glance, data of 31 OECD member states and of 5 non-OECD member states were used. These are Brazil, Estonia, Israel and the Russian Federation. These countries are not members of the OECD, but may soon become its members.

3. Low state support and high private sector resources (Japan, Korea, Chile).

The extent of expenses spent on education depends on the national income available regarding the particular countries. The government of Hungary spends approximately 1% of its GDP on higher education expenditure, and the expenses of the private sector, roughly 0.1% of the GDP, are added to it. Examining the tendency of the indicator from 2000 onwards, in comparison to the 1.1% value characteristic of the beginning of the new millennium, the following years were characterized by a 0.1-0.2% decrease or stagnation (Table 5). Due to the increase in GDP, the 1% expenditure spent on higher education means an increased extent of expenditure; however, at the same time, however, the support of education did not increase, according to the data modified by the change of the consumer price index.

Table 5: Educational expenses in the percentage of the ÁHT (Act on the National Budget) and the GDP (2000-2009)

Year	Educational expenses		Support of post-secondary education
	In % of ÁHT expenses	In % of GDP	In % of GDP
2000	11.1	5.0	1.1
2001	11.4	5.0	1.0
2002	11.0	5.4	1.0
2003	12.3	5.7	1.1
2004	10.7	5.2	1.0
2005	10.4	5.3	0.9
2006	9.6	4.8	1.0
2007	9.5	4.8	1.0
2008	9.5	4.7	1.0
2009	9.7.	4.7.	n. a.

Source: OECD (2010)

Considering Hungary in an international perspective, it falls behind the OECD average by 0.5% and compared to the EU 19 average, the expenditure of Hungary on higher education in GDP % stays behind by 0.3 per cent. In 2007, Hungary managed to outrival only two OECD countries, Italy and the Slovakian Republic.

When translating the GDP-proportional expenses to specific numbers, the difference between countries becomes more apparent. Educational expenses per student can also be examined through a comparable price (e.g. USD) for the purpose of international comparisons. *Regarding educational expenses, Hungary is among the stragglers of the OECD countries, and this is all true for elementary, secondary and higher education*. In 2007, the higher education expenditures of OECD countries per student ranged between 5,500 and 27,000 USD. In Hungary, this same value was slightly over 6,700 USD, placing the country in the last third of the members.

Furthermore, the process of change regarding expenditures does not indicate a more favorable image either in Hungary. While in the OECD countries the increase in educational expenses per student has been a general tendency lately, yet Hungary is again among the last of the OECD countries, even regarding this indicator. Compared to the beginning of the new millennium, the educational expenses increased by 33% until 2007, but the number of students in the same period grew by 51%. This resulted in a decrease of 18% in expenditures per student in total (Table 6).

Table 6: Changes in higher education expenses per student (1995, 2007)

Description	Changes in expenses (2000 = 100)		Changes in No. of students (2000 = 100)		Changes in expenses per student (2000 = 100)	
	1995	2007	1995	2007	1995	2007
Hungary	**77**	**133**	**58**	**151**	**133**	**88**
OECD average	82	136	84	122	98	114

Source: OECD (2010)

It needs to be noted that the number of students increased much more intensively than the expenses in the course of the examined period.

Another reason for Hungary's backlog is economic recession. During recession periods, the efficient operation of educational systems is always caught in crossfire; on one side, there is the decreased extent of available resources, and on the other side, there is increasing the significance of investing in human capital, as one of the prerequisites of economic recovery is the acquisition of necessary competences and skills.

On the basis of the currently known higher education concept, it becomes distinct that *investment in human equity in Hungary is less supported, and this may presumably worsen the nation's already bad position*, if there are any indicators left to deteriorate further.

Similarly to Hungary, some other European countries were also unable to increase their expenditures spent on higher education to such an extent that they could maintain the earlier expenditure per student value. In the case of students of post-secondary education, the average expenditure per capita is even less than half of expenses of the USA in most of the European countries. However, the demand for more and higher quality higher education sooner or later will force the governments of most of the countries to make decisions, as more investments are required in higher education, therefore it needs to be decided whether the extent of state support or that of private financing should be increased.

As compared to the amount of state support, Hungarian higher education was characterized by a significant extent of resource deductions. The supervisory organ implemented two withdrawals just this year, and the recently published Government Decree stipulates further blocking and significant retention of balance-in-hand. The amounts withdrawn from the system mean more and more severe burdens on higher education institutes, and they will have to introduce restrictive measures in response to manage without the retained support. Most presumably, the solution will be the rationalization of the number of staff, as the existing infrastructure needs to be maintained and its costs can be only slightly decreased. Are the deductions taking place with respect to higher education really helping the government?

The forecast regarding the education related expenditure of the budget within the system of state finance was HUF 1,237,224 million in 2009 (it is 13.8% of the main expenditure of the central forecast for the year 2009). One fifth of that sum, namely HUF 252,713 million was spent on higher education, which is 2.8% of the main expenditure total of the central forecast (Table 7).

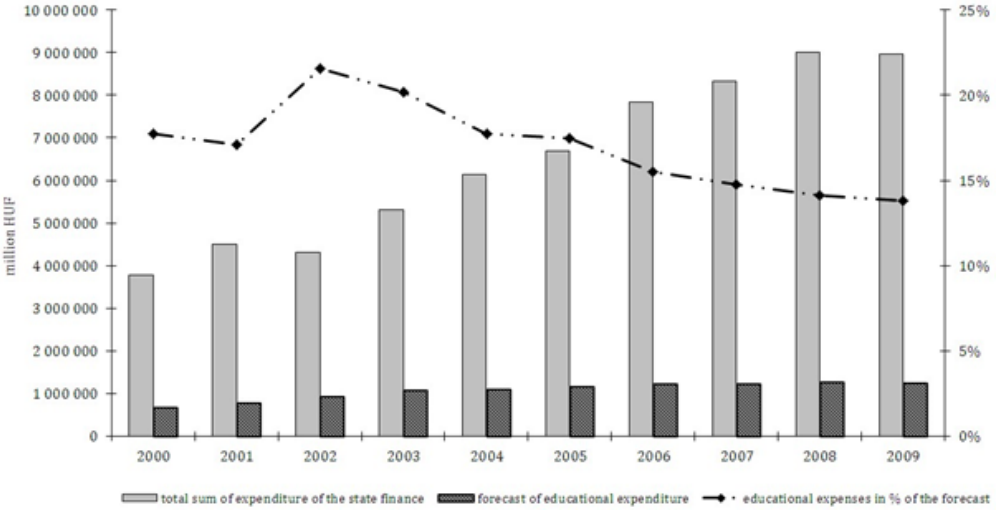
Table 7: Entire education and higher education expenditure aggregate amounts of the budget of the Republic of Hungary, 2000-2009

Year	Entire education		Higher education		
	Expenses forecast (at ruling price in million HUF)		Expenses forecast (at ruling price in million HUF)	Expenses in total % of expense forecast	Expenses in total % of education forecast
2000	672,943	17.76%	143,239	3.78%	21.29%
2001	770,879	17.10%	155,379	3.45%	20.16%
2002	932,529	21.58%	176,473	4.08%	18.92%
2003	1,071,456	20.18%	207,604	3.91%	19.38%
2004	1,089,090	17.76%	205,179	3.35%	18.84%
2005	1,170,113	17.47%	216,554	3.23%	18.51%
2006	1,216,135	15.50%	224,544	2.86%	18.46%
2007	1,228,401	14.75%	242,771	2.92%	19.76%
2008	1,275,107	14.14%	256,390	2.84%	20.11%
2009	1,237,224	13.81%	252,713	2.82%	20.43%

Source: Own editing based on the NEFMI (2010) and on the Act on the National Budget (2000-2009)

In the last 10 years, the total amount of the expenditure forecast of Hungarian state finance increased by 2.4 times, including the increase of the total amount of the expenditure forecast on education, increased only 1.84 times (this ratio in the case of higher education is 1.76). In 2000, educational expenditure was 17.8% of the total Hungarian expenditure, whereas by today, the same ratio decreased by 4%. This decline is a constant tendency since 2002 (when the proportion of educational expenditure was 21.6%) (Figure 7).

Figure 7: The total sum of the expenditure in the budget and the forecast of educational expenditure, 2000-2009



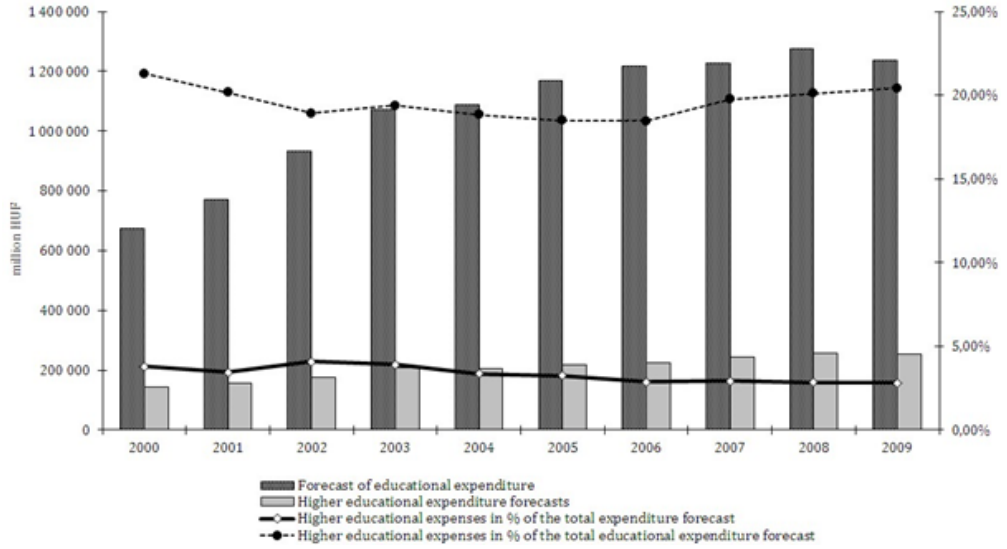
Source: Own editing based on the data of the NEFMI (2010)

The expenditure forecast of higher education increased every year until 2008, but the extent of its change is below the variance shown in the changes of the complete educational expenditure. *Less and less is spent on higher education trainings in proportion to expenses*; while in 2000, the forecast for higher education expenditure took up 3.8% of the total state finance expenses, this value decreased by nearly 1 per cent by 2009. The same tendency can be observed within the expenditure forecast of the total educational section: while the expenses of higher education took up 21.3% of the educational

expenditure at the turn of the millennium, this value decreased below 18% by 2006. Although this ratio indicates a slight increase in the forecast of the past few years, it must be noted that a significant extent of resources were removed from the budget of higher education through the modification of forecasts in the last 4 years (Figure 8).

In 2009, Hungary spent 2.9% of its budget on higher education. In the last two years, this proportion decreased further. From this relatively small amount, the government has already taken away resources several times this year. The withdrawn sum may be considered as a small sum with respect to the system of state finance, but it is a significant loss with respect to higher education, and the related effects may be substantial regarding the social and economic future of Hungary.

Figure 8: Forecasts of the educational expenditure of the state budget and the expenditure forecast for higher education, 2000-2009



Source: Own editing based on the data of the NEFMI (2010)

11. The Reform of Hungarian Higher Education?

Although it examines only a few basic issues, the study still manages to indicate that *the future of higher education fundamentally impacts the social and economic progress of the whole nation*. In the present situation, *it seems that the Hungarian higher education system is changed merely due to fiscal reasons* – without the consideration of relative facts and data – and *its impacts are not reckoned with*.

The budget of 2011 included 189 billion HUF for supporting higher education, out of which 20 billion HUF was immediately blocked by the government at the beginning of the year (since then, this sum became a withdrawal), and further blockings took place in August and September. The Széll Kálmán Plan (2011) is planning to withdraw 88 billion HUF from higher education support in the following three years: the national budget support of higher education is planned to decrease by 12 billion HUF in 2012 and by 38 billion HUF each in 2013 and 2014. This nearly 50% withdrawal of resources is unprecedented since the change in the political regime in Hungary. The proportions of higher education expenses with respect to the budget changed very little since 1995, considering the GDP percentage; this value was 0.9% in 1995, 1.1% in 2000, and 1.0 in 2009. In regional comparison, this proportion is not to be considered as bad, as the neighboring countries also spend app. 1% of their GDP on higher education. When translating the GDP-proportional expenditure to specific numbers, however, *it turns out that the financing of Hungarian universities cannot be considered competitive*.

While OECD countries spend 8,970 USD per student on higher education (if higher education research and development is also included, the amount spent is $12,907), Hungary spends (without R&D) 5,365 USD (6,721 USD including R&D) per student on higher education, i.e. approximately half of the OECD average.

It is understood and considered as particularly important to make sure that Hungary meet its undertaken national budget obligations. However, we do not find the cutbacks made regarding higher education support to be the best area to achieve such goals. The intention of this study was to introduce the multiple tones, complexity and intricacy of this field. The change of one single factor (in this case, the budget resources) may start a whole avalanche, the impacts of which cannot or just very insecurely be forecasted yet. The planned reform can be feared of having the opposite effect. In lack of skilled and trained workforce, economic growth may slow down, which can re-generate the current problems of the budget. The numbers of students are decreased due to fiscal reasons, but the thirst for education cannot be mitigated as such, therefore it is highly likely that students would go abroad for acquiring the education, thus accelerating the migration tendencies. Many similar issues should be taken into consideration in order to be able to make real changes.

Education directly determines the course of progress of a country, therefore it is particularly important that the directions of changes be professionally well-established and serve the nation's growth.

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